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and
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Vol. 79. No. 2.

620 SOUTH MICHIGAN AVENUE, CHICAGO, JANUARY 10, 1920.

\$2.00 Per Year.



WISE

WARM AIR HEATERS



DEALERS desiring to make a **WISE** selection for the New Year should look into the heating and selling merits of the

WISE WARM AIR HEATERS

THE many sensible and efficient features of the **WISE WARM AIR HEATERS** make them heaters of quality and reliability. Because of these easily recognized facts our dealers for many years have successfully and profitably sold **WISE WARM AIR HEATERS**.

Notice from the sectional illustration the sturdy and sensible construction of the **WISE WARM AIR HEATERS**. Only first quality material is used and the workmanship is the very best.

SIMPLEX PIPELESS WARM AIR HEATER

You should handle a good pipeless warm air heater. Many home owners in your territory are good prospects. The **SIMPLEX PIPELESS WARM AIR HEATER** is a **GOOD** pipeless warm air heater with which you can get your share of the pipeless heater business in your district. Let us tell you all about it.

There are many important features of the **WISE WARM AIR HEATERS** that we would like you to know about. Let us explain them to you in detail. Write today for full information and our dealer proposition.

Write today for complete catalogs



WISE FURNACE COMPANY

AKRON, OHIO



MAHONING HEATERS

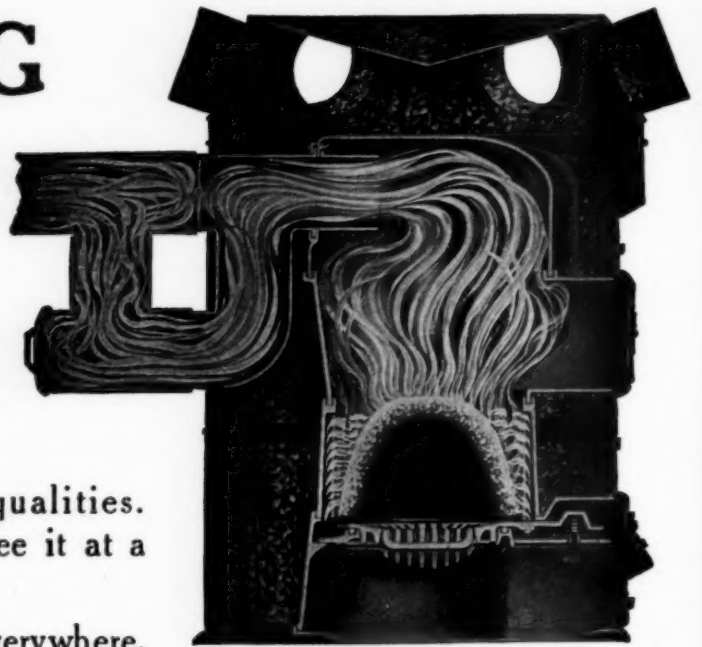
Sell Themselves

So many superior qualities are involved in **MAHONING** construction that to tell of one would slight others equally as important.

No need to *talk* Mahoning qualities. *Show* your customer,—he will see it at a glance.

We want good live dealers everywhere, and offer a tempting proposition.

A style and size for every purpose.



MAHONING TYPE "C"

Illustration shows quite clearly the combustion as it takes place in the Mahoning system. Note how the admission of air through the slots in the firepot causes combustion to take place all around the outside of the fire. The hottest part of the flame is in direct contact with the outside surface of the heater where the radiation of heat takes place. Only one of the features that have made the Mahoning famous from coast to coast.

The MAHONING FOUNDRY CO.

YOUNGSTOWN, OHIO

A Mammoth Plant With a Mammoth Production

FRONT RANK

TRADE NAME REGISTERED

Real "FITTING FITTINGS"



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Representative of
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Sheet Metal, and Warm
Air Heating and Venti-
lating Interests
PUBLISHED EVERY SATURDAY

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IT IS A MISTAKE to suppose that the Trade Acceptance is an instrument which can be explained only in highly technical language and whose use can be understood only by financial experts. The truth of the matter is that its plan of operation is simple in the extreme, and its understanding need not be in the least difficult unless we bring into its discussion elements which, while they may affect transactions out of which the acceptance comes, should properly be considered in a separate connection.

In Canada the trade acceptance—or trade paper as it is termed there—is the credit instrument by which virtually the entire internal trade of the country is transacted. Obviously, if it were not a simple and logical medium it would have no such place in the business life of Canada. Nor would similar instruments exist and similar usages prevail in other countries. In England and France a merchant who can not pay cash for merchandise gives his written obligation to the seller, or more commonly the seller draws a time draft (which we call a trade acceptance) on the buyer, and then the draft or trade acceptance is discounted at the bank.

That the trade acceptance method is in common use in other countries is not necessarily an argument that it should be generally practiced in the United States, but it does indicate that it is not only simple but effective. It is well for us to bear in mind that our own open book account system was the outgrowth of a condition brought about by the Civil War. A half century has passed since then, and the transformed condition, character and volume of our business activities demand something more in the way of facilities and methods than existed heretofore.

The general adoption of the Trade Acceptance system by the commercial community would benefit the consumer in several important ways, declares President Treman. Indeed, it is his belief that the trade acceptance will help stabilize prices by materially reducing the losses of interest and bad debts and thus decreasing overhead expenses.

He reasons that Trade Acceptances being the best and most liquid form of a bank's assets, the general use of them and their purchase by banks would make the bank's investments sounder and the banking position stronger. Everything which tends to make the bank position strong tends to benefit the entire community. Trade acceptances make for lower rates of interest as they can be rediscounted at Federal Reserve banks at a lower rate than any other form of merchants paper and they therefore permit more eco-

nomical distribution of merchandise and food products.

As the seller who uses trade acceptances can employ his capital to better advantage and make it do nearly double the work possible under the open book account system, with slight additional risk and with more frequent turnover, his business has a smaller operating cost. Whatever losses may occur under the open book account, the public in the last analysis has to assume through the price of goods, and any improvement in business and credit methods which can be installed tending to reduce this loss can not but be of benefit to the public, that is, the consumer.

If large corporations with high credit which finance their needs by borrowing from banks on their single name paper or by securing additional money by issuing bonds would adopt the Trade Acceptance system and arrange with their customers who also are, as a rule, of high credit, to accept Trade Acceptances, they would secure their additional capital at a lower rate of interest because such acceptances would find a ready market. And because of the investment capital thereby released and if the corporations secure their working capital at a lower rate, it should assist them in making lower prices to the consumer. In the judgment of President Treman, therefore, the advantages of the Trade Acceptance are evenly distributed through every division of business from factory to home.

ties and methods than existed heretofore.

Retail hardware dealers and sheet metal contractors who entertain assumptions or prejudices of any kind as to the trade acceptance method would do well to ask the American Acceptance Council, 111 Broadway, New York City, for a free copy of the booklet entitled "Trade Acceptances," by Robert H. Treman, President National Hardware Association and formerly Deputy Governor of the Federal Reserve Bank of New York.

ONE OF THE perplexing problems of our day is the matter of price guarantees. There appears to be much difference of opinion on the question. A number of manufacturers and jobbers have adopted a plan of guaranteeing prices against a decline taking place before the delivery of the goods. Manifestly, the plan is open to the objection that if prices go down in the meantime the buyer gets his goods at reduced cost, whereas if prices rise the seller loses the difference. The arrangement is so unsatisfactory

Guarantee Of Prices.

that the Federal Trade Commission has begun an investigation with a view to bringing out a consensus of manufacturers on the subject. Elsewhere in this issue of AMERICAN ARTISAN AND HARDWARE RECORD is printed the letter of the Federal Trade Commission asking for expression of opinion on price guarantees.

An Eastern authority calls attention to the assertion that guarantees of the kind have prevented a reduction in the high cost of living. It is certain that they have encouraged rather too liberal buying, because purchasers were taking no risks, and this very lavish buying has helped in pushing up prices. But there is no unanimity of sentiment in the matter, and so the Federal Trade Commission is trying to get an estimate of the prevailing ideas on the problem from commercial and civic bodies, trade organs and papers, labor groups and farmers' associations. Written statements are called for, and these will be classified and distributed. Then will follow a regular hearing before the Commission of all parties interested. It will take several weeks before such a hearing can be held. In the meanwhile a thorough discussion of the question in meetings of trade organizations will help disclose the benefits and disadvantages of the plan of price guarantees and perhaps lead to some better system for solving the problem.

THE APPLICATION OF the principles of the Constitution of the United States to the operation of industry has been urged in these columns as a solution of the labor problem. Our government is

Industrial not perfect. If it were perfect the nation would crystallize. Disintegration would follow and in a few years the coyotes would be howling their dismal complaints among the moss-covered ruins of what was once Chicago, or Denver, or Los Angeles. The imperfections of our free political institutions are not barriers to progress but gateways to betterment. We have conquered the wilderness under the guidance and inspiration of our national charter of liberty. We have ended chattel slavery. We have destroyed the last vestiges on the western continent of serfdom and peonage. We have multiplied opportunity so copiously that there is no longer any reason for poverty or ignorance and the humblest citizen may become the chief executive of the nation. In a word, democracy is a success.

Democracy has solved the main problems of political existence for us. It can solve the chief problems of commercial existence for the people. Industrial democracy as defined, for example, by John Leitch in the December issue of the *American Magazine*, is "the organization of a factory, or any other business concern, into a little Democratic State, with a representative government which makes its own laws and has the power to enforce them. The plan can be applied in a big organization or in a small one. If the plant is large, the government is very much like that of this country. It is vested in a House of Representatives, a Senate, and a Cabinet. The members of the House are elected, by secret ballot, by the whole body of workers. Suppose, for example, that the plant is a large factory, with various departments. In that case, the elections are held by departments,

each one choosing its own representatives. The usual basis is one member for every twenty to one hundred persons in the organization. If a plant has fifteen thousand employes, one representative to each twenty of them would make a House of seven hundred and fifty members, which is too unwieldy. So the basis in that case would be nearer one per hundred. The men and women who are elected to the House sit in that body as the representatives of their 'constituents.' It is their duty to present all complaints, requests, and suggestions from the workers who have elected them. Not to the officials of the company! But to their fellow members in the House. These members are themselves workers, and their point of view is an inside one."

In every case in which industrial democracy has been tried, honestly and sincerely, improvements have been steady in the growth of the business and quality of the craftsmanship and in the personal development and contentment of the workers. It is not a panacea for all manner of industrial ills. It does not and can not take the place of individual initiative or ambition. But it does furnish more elbow room for the swing of such forces. Its biggest achievement, apart from maintaining economic peace, is in the restoration of the old intimate relationships of man to man in which the worker ceases to be a number on the time-keepers' books and becomes a brother to his employer and proud of the kinship.

THERE IS ONE thing of which every human being possesses an equal amount. No one has more than twenty-four hours a day and no one less than sixty seconds a minute. Hence, the number of days remaining between now and February 2, 1920, when

AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition ends, is absolutely the same for every one who intends to take part in the contest. All, therefore, have an equal amount of time in which to plan a prize-winning window exhibit and enter the photograph and description of it in the Window Display Competition. A great deal can be done between now and the second day of next month. But every day which is allowed to slip by with nothing accomplished toward participation in the window display contest means a lessening of opportunity.

Reasons are plentiful why every hardware dealer, window trimmer or other person connected with the devising or arranging of window displays of hardware and kindred commodities should enter one or more window exhibits in this competition. From one point of view, the least important of these reasons is the winning of a cash prize. The really big and compelling reason is the stimulus which it gives to betterment of the store's selling efficiency. The old proverb, "seeing is believing," might well be changed to "seeing is buying." By putting goods into the window and disposing of them in the most attractive setting, the attention of the passer-by is arrested and held long enough for desire to be aroused. Sales follow in a large percentage of cases. The better the window display the greater will be the number of sales.

We are so constituted that we need incentives to

perform work more than that required to supply the actual necessities of existence. Our best and most resultful work is done under the spur of emulation, of intelligent rivalry, and of competition for rewards. By availing ourselves of the experience of others and by taking advantage of comparison with their work, we discover our imperfections and are inspired to remedy the flaws thus brought to light.

RANDOM NOTES AND SKETCHES.

By Sidney Arnold.

Service implies obligation. It is not something which we give for nothing. On the contrary, it is the payment of a debt. An expression, common but inaccurate, would have us believe that we get out of life only what we put into it. As a matter of fact we receive more than we give. Knowledge, for example, is the accumulation of centuries of study and investigation. No one of us individually could acquire all the knowledge he possesses by his unaided effort. It comes to him as a social or collective heritage. It is a combined result—not a personal achievement. Millions serve us in the production and distribution of the things which we use every day. As a debt of justice, therefore, we owe service to our fellow men.

* * *

I had a jolly visit this week from my friend, J. B. McKewon of Portland, Oregon, western sales manager of the Malleable Steel Range Manufacturing Company, South Bend, Indiana.

* * *

Another friend who brightened the day for me by a visit is James R. Graves, sales representative for the Detroit Vapor Stove Company, Detroit, Michigan, in the Chicago territory.

* * *

At a dinner party the conversation turned to the topic of repairing bad breaks—in social, not mechanical matters. My friend F. C. West, Advertising Manager Richards-Wilcox Manufacturing Company, Aurora, Illinois, told about the cleverness of a man named Ogden.

One night Ogden attended a fashionable function in the high society district of the town. While there he was introduced to a Mr. Brown. Even as they conversed on politics and the price of battleships a woman passed just beyond.

"Did you notice that woman?" asked Ogden, turning to his companion. "She looks as if she were painted——"

"Sir!" indignantly interposed Brown. "That woman is my wife——"

"Painted by Raphael," calmly continued Ogden, apparently not noticing the interruption, "and had just stepped from her frame to the floor."

* * *

When used judiciously, flattery is an aid to salesmanship, declares my friend Tom Gal'avin of E. C. Stearns and Company, Syracuse, New York. He offers this instance:

"What!" cried the careful housewife, "you charge me \$1 for these potatoes?"

"Yes, madam," answered the polite grocer. "That is the very lowest price we can sell them for."

"How is it that I can get them from Brown's for 90 cents, then?"

"I can not say, madam. Perhaps Mr. Brown has taken a fancy to you. He is a widower and you are beautiful. Unfortunately, I—yes'm, one dollar."

* * *

There is no use in working or saving, unless one gets pleasure out of it, says my friend Paul L. Bier-sach, Secretary Master Sheet Metal Contractors' Association of Wisconsin, Milwaukee, Wisconsin. To cite an example, he tells of a lad who said to a caller:

"I get a penny every time I take castor oil."

"Well," queried the caller, "what do you do with your pennies?"

"Oh, I give them to mamma and she buys more castor oil with them."

* * *

How easy it is to misunderstand a word is shown in the following story by Julius Gerock, Jr., of Gerock Brothers Manufacturing Company, St. Louis, Missouri:

A young clerk was called before his manager to explain why he was doing his work so carelessly.

"Mr. Smith," said the manager, "of late your work has been very perfunctory."

Before the manager could proceed the young clerk broke in:

"Mr. Jones, I've been working here for three months now, and, though I have tried my best, that's the first bit of praise I have received since I've been here. Thank you!"

* * *

The circumstances were exasperating but my friend Ike Stearns of Michigan Safety Furnace Pipe Company, Detroit, Michigan, could not resist the humor of the following incident:

Said the waiter to a noisy card party in a hotel bedroom, "I've been sent to ask you to make less noise, gentlemen. The gentleman in the next room says he can't read."

"Tell him," was the reply of the host, "that he ought to be ashamed of himself. Why I could read when I was 5 years old."

* * *

Many of my readers know Charles Mackay's poem about what might be accomplished by brotherly co-operation. There are many others, no doubt, who are not familiar with it. I should like to see this poem in every man's office and home. We all need its teaching:

What Might Be Done.

What might be done if men were wise,
What glorious deeds, my suffering brother,
Would they unite
In love and right,
And cease their scorn of one another!

Oppression's heart might be imbued
With kindling drops of loving kindness,
And knowledge pour
From shore to shore
Light on the eyes of mental blindness.

What might be done? This might be done,
And more than this, my suffering brother;
More than the tongue
Ever said or sung,
If men were wise and loved each other.

AMERICAN ARTISAN

WALTER E. GRAHAM.

The delicacy of the pink of dawn among the hills is a thing of ecstasy to the poet. There is rapture for him in the color-markings of a butterfly's wing.

"And as imagination bodies forth

The forms of things unknown, the poet's pen

Turns them to shapes, and gives to airy nothing

A local habitation and a name."

But the traditions of his craft from the time of Homer to the days of Swinburne hold his verses to knightly deeds of war, the play of emotions, the charm of flowers, the praise of wine, and the mystery of "the end of all, the popped sleep." The long-haired visionaries of Greenwich Village would shrink from the sacrilege of mentioning poetry and lawn mowers in the same sentence. Only a Walt Whitman or an Edward Carpenter would find no unseemliness in such a union of fact and fancy.

Walter E. Graham, President of The Philadelphia Lawn Mower Company, Philadelphia, Pennsylvania, thinks of lawn mowers not merely in terms of output and profit. He perceives the romance of them—the essential poetry of their commerce. To the grubbing business man who never glances up from the study of dollars and cents, such an attitude of mind is as unintelligible as the hieroglyphics on an Egyptian monument. Indeed, he is likely to mutter uncomplimentary words about the person who entertains and dares express such outlandish sentiments. Poets, he argues, are idlers and wastrels who spoil much paper which could be put to better advantage in filing orders for nails, plows, washing machines, or galvanized sheets.

Last year, Walter E. Graham sold two motor lawn mowers to the Willingdon Sports Club in Bombay, India. In effect as well as in imagination the transaction represented itself to him in a series of pictures graphic and alluring. The smooth sward of the Willingdon Sports Club suggested the contrasts and progress of centuries since the days when the fierce warriors of northern India were acting out the epic of the *Maha-bharata*. It typified to him a stage of culture in which the ruder elements of environment had long since been overcome, and which affords an

ever-widening margin in which life may be embroidered with art and gladness.

He takes pleasure in visualizing his company's products at work in Australia, China, Japan, and the Philippine Islands. All his life has been spent in the lawn mower business. It has a million phases of interest to him which are hidden and obscure to the prosaic people who never allow their fancies to wander beyond the work bench and the market place. He was born in Philadelphia, Pennsylvania, just a year before the beginning of the business which is known as The Philadelphia Lawn Mower Company. That is to say, he first saw the light of day, January 12, 1868. He received his education in the public schools of

Philadelphia and was graduated from the high school of that city. When he finished his schooling he went to work for the firm of Graham, Emlen and Passmore, the inventors and pioneer manufacturers of the first side wheel lawn mowers. His father, John H. Graham, was the senior partner of the firm. He taught his son the business from every angle. He made it clear to him that imagination properly controlled is one of the most powerful factors in the development of any enterprise. To plan enlargement of productive facilities, create demand, and to gain entrance into far-off markets one must not only have deep conviction regarding the worthiness of the product but the foresight to anticipate the varying



needs of humanity with reference to the particular commodity.

That Walter E. Graham put his whole heart and soul into the business and kept himself always sensitively responsive to the impulses of high ideals is amply evidenced in the marvelous growth of the business established by his father and associates in 1869. Twenty-three years ago its name was changed to The Philadelphia Lawn Mower Company and Walter E. Graham became president and general manager. At that time there were thirteen stockholders. Today he is sole owner of every share of stock and still president of the company. He has a mellow sense of humor. He enjoys poetry and music. He gets more happiness out of life than the average business man.

HALL OF FAME

THE HONORABLE J. LOVELL JOHNSON.

The Japanese have a proverb saying that a fog can not be dispelled with a fan. In other words, the means must be suited to the end. To attempt big tasks without training is as much a waste of energy as if one were to try to hammer out a horseshoe on an anvil with a teaspoon. That is why the Honorable J. Lovell Johnson, President of the Iver Johnson's Arms and Cycle Works, Fitchburg, Massachusetts, began his business career in 1896 as an office boy in the corporation of which he is now the head. Thus he avoided the blunder, not altogether uncommon, of passing without preparation from the study of textbooks to the work of administration.

He was fortunate in having parents who appreciated the value of practical experience in every department of the business as well as the necessity of a thorough education, technical as well as general. They kept him at his books until he was twenty years of age. He received most of his instruction in Worcester, Massachusetts, where he was born June 26, 1876. After his graduation from the grammar school in Worcester, he entered the high school in Fitchburg, Massachusetts, and rounded out a full course of study in that institution. He was then admitted to the Worcester Polytechnic Institute.

Many young men at the age of twenty, possessing the knowledge acquired by hard study in so notable a school as the Worcester Polytechnic Institute, would look with disdain upon the lowly position of office boy in so important a plant as the Iver Johnson's Arms and Cycle Works. They would consider it a thousand miles below their dignity and merits. At twenty, one is likely to place a valuation upon one's services and talents greatly out of proportion to other men's appraisal of them. But J. Lovell Johnson was an exception in this respect. He had a definite goal in view and he was determined to master every inch of the intervening ground. If shoveling coal or digging ditches had been an essential part of the process of attainment, he would have buckled down to that sort of labor without any thought of humiliation or protest.

Today he knows every detail of the Iver Johnson's

Arms and Cycle Works because he learned them in the exacting school of experience. Big as the business is, it does not exhaust his executive abilities. Wherefore, he is not only President of that corporation but also of the Johnsonia Hotel, Incorporated, of Fitchburg, Massachusetts, and of the Iver Johnson Sporting Goods Company of Boston, Worcester, and Fitchburg. Besides, he is vice-president and member of the executive committee of the Fitchburg Bank and Trust Company and the Fitchburg Mutual Fire Insurance Company. He is a director of the Merchants' National Bank of Boston and the Merchants' National Bank of Worcester; trustee of the Fitchburg Savings Bank and on the Board of Investments; di-

rector of the Boston Casualty Company and the Fitchburg Cooperative Bank and on the Finance Committee of both.

J. Lovell Johnson is not the type of citizen who leaves politics in the hands of professional demagogues. On the contrary, he takes a keen and active interest in civic affairs. He was alderman of Fitchburg from 1901 to 1903 and president of the Board in 1902 and 1903. He was elected state senator to represent the Third Worcester Senatorial District and served in that capacity during the years 1907 and 1908, being the youngest state senator in Massachusetts. He was Councillor of the Seventh District in 1909 and 1910. He was treasurer of the Republican State Committee and in



1916 was a delegate to the Republican National Convention in Chicago.

He is 32nd degree Scottish Rite Mason, Shriner, and Past Exalted Ruler of the Elks. He belongs to the Fitchburg Chamber of Commerce, Home Market and Algonquin Clubs, Boston Athletic Association; Fay, Alpine and Sportsman's Club of Fitchburg, Republican Club of Massachusetts, Leominster Country Club, the Worcester and Tatassit Clubs of Worcester, Watatic Club of Ashburnham, Boston City Club, and Worcester County Republican Club. He was one of the 100 members of the Local Committee on Public Safety appointed by Governor McCall.

He is an all-around sportsman and his favorite diversion is shooting ducks with an Iver Johnson gun.

UP TO THE MINUTE NEWS SIFTINGS

PERFECTS PLANS TO ORGANIZE THE INVENTIVE GENIUS OF AMERICA.

Definite plans to mobilize American inventive genius were taken January 9, 1920, at the Hotel Astor, New York City, when definite arrangements were concluded for the establishment of the National Laboratory Foundation for Invention and Research. Plans have been quietly going on for the past two years for the establishment of the foundation, under the direction of Thomas Howard, Executive Chairman of the National Institute of Inventors, with an enrollment of nearly three thousand members scattered throughout the country.

The project is supported by many representative men of science and industry. It is planned to establish the laboratory by independent endowments of wealthy men and the large industrial firms of the country and then make it self-supporting by a percentage arrangement on the invention of inventors which the laboratory will help develop and market, giving financial aid to the poor inventor.

ASBESTOS MILLBOARD CAN BE PUT TO NUMEROUS USES.

An asbestos millboard which can be put to many uses is manufactured by the A. W. Jack Corporation, Lockport, New York. It is particularly adapted for stoves, ranges and warm air heaters on account of its insulating properties. The products of this company are composed of materials which are carefully selected to meet the needs of the trade. There is a comparatively large percentage of high grade asbestos in the composition of the millboard produced by the A. W. Jack Corporation. The compression and formation of the asbestos and other products are skillfully done. The result is an article which will withstand heat and severe usage. For information as to the various manners in which its asbestos millboard can be employed and for prices thereof write to the A. W. Jack Corporation, Lockport, New York.

FURNISHES STOVE REPAIRS PROMPTLY.

Repairs and supplies for stoves and warm air heaters can be obtained quickly from the Omaha Stove Repair Works, Omaha, Nebraska. This company announces that at all times it keeps its stock replenished with a high grade stock of heating plant repairs. Systematic handling of orders received, enables the Omaha Stove Repair Works to expedite shipments of repairs. Customers in various parts of the country declare their satisfaction with the service of this company. The experience and knowledge of the Omaha Stove Repair Works fit it to meet the exacting requirements of supplying repairs for a great variety

of stoves and heating systems. Inquiries addressed to the Omaha Stove Repair Works, Omaha, Nebraska, pertaining to stove and heating plant supplies will be promptly answered.

CLEANSER LEAVES HANDS SMOOTH.

Because a man handles stoves does not mean that he should always have black hands. This applies equally to other fields of work where the soiling of the hands is involved. Grease, dirt, soot, blacking, etc., can be easily and quickly removed by the use of Hand Witch, manufactured by the Nickel Plate Stove Polish Company, Chicago, Illinois. It is antiseptic. Unlike the alkaline products, Hand Witch will not leave the hands rough after using. There is no acid in the composition of this cleanser to eat the skin.

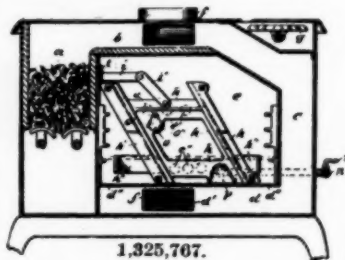


Hand Witch, Made by the Nickel Plate Stove Polish Company, Chicago, Illinois.

declare the manufacturers. Not only is it a good article to have around the shop or store for personal use, but it can be profitably sold, state the manufacturers. Hand Witch has an established prestige among mechanics for the ease with which it removes dirt and the smoothness of the hands following its use. Free samples of Hand Witch can be obtained by writing to the Nickel Plate Stove Polish Company, 358 East Illinois Street, Chicago, Illinois.

SECURES PATENT FOR CONVERTIBLE GAS BURNING OVEN.

Albert H. Tinnerman, Cleveland, Ohio, has obtained United States patent rights under number 1,325,767 for a convertible gas burning oven described here-with:



The combination with a solid fuel range and its oven, of a converting gas-burning member adapted to be inserted and removed from said oven, an apertured air-distributing plate for said member positioned above the oven bottom, a gas and air mixer connection extending to the oven; said oven being provided with an air duct positioned above its bottom, and with a vent to the chimney stack, closure means for each, and means controllable by the movement of the gas-burning member for automatically actuating the said closure means, substantially as set forth.

THE WEEK'S HARDWARE RECORD

Of Interest to Manufacturer, Jobber and Retailer

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing western hardware and metal prices corrected weekly. You will find these on pages 40 to 45 inclusive.

The Lee Hardware Company, Salina, Kansas, will increase its capital stock from \$600,000 to \$1,000,000.

The Burlington Hardware Company, Burlington, Kansas has increased its capital stock from \$10,000 to \$50,000.

ANNOUNCES CONVENTION PROGRAM.

Judging from the program arranged for its sessions, much benefit will be derived from the convention of the Western Retail Implement, Vehicle and Hardware Association, which is to be held in Kansas City, Missouri, January 13, 14 and 15, 1920. The program if the meetings is as follows:

Tuesday, January 13, 9 a. m.

Call to Order by the President.
Song, "America," Everybody.
Invocation, the Reverend Robert Nelson Spencer.
Announcement of Committee Appointments.
Annual Address of President, W. E. Haynes.
Annual Report of Secretary, H. J. Hodge.
"Business Conditions Confronting Our Industry,"
H. M. Wallis, Racine, Wisconsin, President of National Implement and Vehicle Association.
"Our National Federation," T. J. Turley, Former President, Owensboro, Kentucky.

Wednesday, January 14, 9 a. m.

Question Box, in charge of O. Gossard.
"Salesmanship," Roy F. Soule, New York City
"Modern Merchandising," Fred P. Mann, Devils Lake, North Dakota.

Thursday, January 15, 9 a. m.

Question Box, in charge of T. N. Witten.
Conference with Sales Managers—Subjects for discussion:

(a)—Is the implement dealer measuring up to expectations as a seller of tractors and power farming machines?

(b)—What are manufacturers doing to assist the dealers in promoting sales?

Sales managers represented by: W. R. Lumry, Associated Manufacturers' Company; D. C. Reeves, J. I. Case Plow Works Company; J. D. White, Emerisan-Brantingham Company; A. T. Jackson, Rockford, Illinois.

Dealers represented by: A. A. Doerr, T. J. O'Neil, John W. Gray.

Discussion open to all members and sales managers. About fifty of the latter have signified their intention of being present.

Report of Resolutions Committee.

Report of Committee on Necrology.

Election of Officers.

Miscellaneous Business.

Adjournment.

Question Box.

Why should manufacturers bill tractor repairs C. O. D.?

Why should not the dealer have 25 per cent commission on tractors?

Can the dealer afford to stock repairs on the basis of 25 per cent discount?

Can the implement business be successfully conducted upon the cash basis?

What amount of acreage will justify the purchase of an average priced tractor?

Will the tractor and electric motor replace the stationary gas engine for farm power?

Will the future farm lighting plants be of the unit type or of the individual gas engine and belt driven generator type?

Why should not the dealer have some recourse when tractors are reduced in price in the middle of the selling season?

Are we justified in insisting upon shippers placing the correct weights on bills of lading, so as to avoid overcharges for weight?

Are the branch houses carrying repair stocks sufficient to justify the manufacturers in insisting that dealers carry larger stocks?

It being clearly impossible for the legitimate implement dealer to handle all makes of tractors, does our Association approve of the plan of selling tractors through the automobile dealer by a competitive manufacturer?

Is the manufacturer or jobber of power-farming implements affording the dealer due protection when he ships an implement to a party who secured a tractor for his own use by signing a dealers' contract but who maintains no place of business and is simply admitting the mistake of ample remuneration for the dealers whose trade was injured?

SHARES STOCK WITH EMPLOYEES IN NEWLY INCORPORATED HARDWARE ENTERPRISE.

That labor shares with capital in the benefits of business is agreed to by the employees of The Kruse Hardware Company, Richmond, Illinois. Recently this company has been incorporated. The employees were enabled to subscribe to stock and become partners in the organization. Charles F. Kruse was the founder of The Kruse Hardware Company. For over twenty years the business flourished under his direction. The incorporation and the benefits given the employees mark The Kruse Hardware Company as being a progressive enterprise.

DEPLORES ANTI-WEAPON ORDINANCES IN INTERESTING LETTER TO AMERICAN ARTISAN.

Often laws are stricter than the condition which they seek to eliminate warrants. But such measures are not oppressive in the least. They are preventive. It is their aim not only to do away with a possible injury to the public, but to eradicate the causes upon which it breeds. However, mankind is fallible, and laws repeatedly err. An instance which clearly illustrates this point is the so-called Anti-Weapon ordinances which restrict the possession of defensive arms. From the point of view of hardware dealers and other merchants who sell weapons and supplies these measures encroach upon their business. Still, where the public good is at stake, private profits must give way. But in the matter of restricting the right to own defensive weapons both the public safety and the merchant's business are imposed upon.

If a hardware dealer were to advocate more liberal laws regarding the purchase and use of weapons of defense, the public would not be profoundly impressed by his arguments. It would instinctively consider him as being guided by motives of his own monetary interest. And such a predicament is in no way helpful to the hardware merchant's business. Wherefore, there can not be expected any organized effort on the part of hardware retailers for the purpose of alleviating the measures put upon the sale and use of defensive weapons. But when a person who is in no way connected with the trade or interested in the merchandising of revolvers and other weapons of defense criticises the injustices and hardships which the present anti-weapon ordinances inflict, he is likely to be listened to with impartiality. And when it is taken into consideration that such a person presents facts and figures proving his contentions, his arguments will gain more than passing notice from the public.

Jesse French, Jr., of the Jesse French and Sons Piano Company, New Castle, Indiana, in a letter to AMERICAN ARTISAN AND HARDWARE RECORD deplores the anti-weapon ordinances, and declares that such measures disarm the citizen and leave him exposed and helpless before criminals of every description. His letter, which is of more than ordinary interest is reproduced herewith:

TO AMERICAN ARTISAN AND HARDWARE RECORD:

In view of the constant agitation by a goodly portion of the press, as well as misinformed individuals, it is about time every citizen looked at this matter of personal liberty from a right viewpoint. With the passing of each year the citizen finds his rights curtailed or abolished in various directions; and we are having entirely too much legislation, both state and national and along the wrong lines.

The so-called Anti-Weapon ordinances are a good example; and of late years it has been the theory that to protect the citizen we must disarm him and leave him exposed and helpless before individual criminals, as well as mob law. New York City has had a long and thorough trial of the Sullivan law and in place of reducing crime as its sponsors promised, the results

show that from first to last, it has proven a disastrous failure, having actually brought about a large increase.

The following report just made public by the Burglary Insurance Companies of New York gives the actual facts as follows:

"Criminals in 10,000 separate thefts robbed the people of New York of money and goods amounting approximately to \$25,000,000 during 1919, according to the New York Tribune. The estimate was given by officials of thirty-two burglary insurance firms in the city, who say that the year just ended has been *the most disastrous in their history*. Robberies increased by more than 30 per cent over last year and the value of the goods stolen almost doubled.

"The principal losses were: Silk industry, \$2,000,000; furrier, \$1,500,000; trucking firms, \$1,500,000; jewelers, \$1,000,000. The total of Liberty bonds and other securities appropriated by youthful bank messengers exceeded \$1,000,000."

The above should convince the most skeptical, once and for all, that disarming the law abiding citizens and coddling the criminal does not bring about the millenium. Let us have less laws and better ones.

Yours truly,

JESSE FRENCH, JR.

WRITES A BOOKLET ON THE SUBJECT OF TRADE ACCEPTANCES.

An extensive demand from business men in all parts of the country for copies of the booklet entitled "Trade Acceptances—What They Are and How They Are Used," by Robert H. Treman, President National Hardware Association, and formerly Deputy Governor of the Federal Reserve Bank of New York, and published by the American Acceptance Council, 111 Broadway, New York City, is necessitating a new and large printing. This booklet is valuable not only for those who for the first time are seeking information as to the trade acceptance method but for those who have already adopted it in their prospective lines of business.

The American Acceptance Council has published during the past year an extensive list of titles dealing not only with trade acceptances but also with banker's acceptances, and will continue to add at frequent intervals new pamphlets and folders dealing in a practical way with related subjects. These are sent without charge to business men who desire them for study and guidance. The Council particularly requests that those desiring copies of the booklet by Mr. Treman communicate their requests without delay to the American Acceptance Council, 111 Broadway, New York City.

BUSINESS FORMS PART OF OUR LIFE.

One of the colossal blunders of the times is that we have been trying to separate the word business from our lives. They are one and the same. Separate them, and there is no beginning or ending; you are a final failure. The same principles are involved in life as in business, and the more we realize that, the more beautiful life and business become.

TIME WANES IN WHICH EXHIBITS CAN BE ENTERED IN THE WINDOW DISPLAY COMPETITION.

The time in which you can participate in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition is drawing to a close. No doubt many hardware dealers have resolved to enter one or more window displays. But like most things which are not pressing they put it off. If you wish to compare your ability in window arrangements with your fellow hardware retailer we urge you to do so now. Do not put it off until tomorrow. Window exhibits require thought. Clear thinking can not be done in a hurry nor on the spur of the moment. It must be done deliberately. Good window displays must be planned. Especially in a contest of the nature of the present one, the demand of skill on the part of the participant is exacting. All who have entered and are likely to do so, try their best. In the time that is left you can not waste one moment if you wish to carry away a prize. Start right at the present time to arrange a window display. Put into it all your energy and creative ability. Determine to win—and you will. But above all, remember the time wanes. Soon the judges will be comparing the work. Will they compare yours? There is enough time yet for you to get busy and gain a prize. If you have an extraordinary exhibit in your windows now photograph it. Do not underestimate your ability. Because of the wide scope of the contest do not think that you can not be successful. The chances are equal. Ability plus energy will win. Read the following simple rules governing participation in this competition:

Award of Prizes.

The prizes will be awarded as follows:

First prize \$50.00 in cash, for the best photograph and description received of window display of hardware or kindred lines;

Second prize, \$25.00 in cash, for the photograph and description second in merit;

Third prize, \$15.00 in cash, for the photograph and description third in order of excellence;

Fourth prize, \$10.00 in cash, for the photograph and description fourth in degree of worthiness.

Conditions of Competition.

The conditions of the competition are as follows:

The photograph must be accompanied by descriptions of how the window displays were arranged and the materials used. The description is important and hence should be adequate. These photographs and descriptions may be sent by mail or express, charges prepaid, and must reach this office not later than February 2, 1920. Address all photographs and descriptions to AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition, 620 South Michigan Avenue, Chicago, Illinois.

Each photograph and description must be signed by a fictitious name or device and the same name or device must be put in a sealed envelope containing the real name and address of the contestant. This sealed envelope is to be enclosed with the photograph. Contestants are permitted to enter as many photographs of displays as they please.

A Competition Committee of three will be appointed. One of them will be an expert window dresser and one an experienced hardware man. This Committee will pass upon the merits of all photographs and descriptions received, without knowing the names or addresses of the senders, and will decide the winners of the Competition.

AMERICAN ARTISAN AND HARDWARE RECORD reserves the right to publish all photographs and descriptions submitted.

SOLICITS OPINIONS ON GUARANTEE AGAINST DECLINE IN PRICE.

The Secretary-treasurer of the American Hardware Manufacturers' Association, F. D. Mitchell, New York City, has sent out the subjoined letter from the Federal Trade Commission soliciting an expression of opinion on the important subject of guarantee against decline in price:

"FEDERAL TRADE COMMISSION,
Washington, D. C.

"Gentlemen:

"The question of guarantee against decline in price has been the subject of so many complaints before the Commission and opinion seems to be so diverse that the Commission has determined to go into the whole matter thoroughly.

"As a basis for the necessary expenditures attending upon such an inquiry, such formal complaints have been issued presenting various phases of the subject. To the end that every party at interest may be fully represented, the Commission is inviting, generally, producers, manufacturers, merchants (wholesale and retail) and consumers, to declare their interest so that the Commission may know what parties should be represented.

"The Commission is asking you therefore to communicate as speedily and as widely as possible with your membership advising them of the invitation and to notify the Commission of the nature of their interest in the subject, if any.

"As soon as this list of the parties at interest in the matter can be compiled, it is the purpose of the Commission to invite each or any of them to submit his observations in writing. This follows the custom of the Commission in numerous other similar cases.

"A reasonable time limit for the filing of written statements will be given, after which they will be assembled and as far as possible, classified and each correspondent will be furnished with a copy of the whole document.

"As soon thereafter as is possible, it is the purpose of the Commission to call a general hearing at Washington at which parties at interest may be present in person, by representative or by counsel, and an orderly method for hearing the matter will be laid out.

"As in everything where the public interest is involved, the utmost expedition consistent with care and full opportunity for the presentation of all sides, is to be desired.

"Letters similar to this are being sent to various associations and concerns but the Commission feels

that its present list by no means includes all those whose interests may be touched by a final determination of the question.

"May we ask you therefore to give the widest possible currency to this invitation?"

"By direction of the Commission.

"Very truly yours,

VICTOR MURDOCK,

Chairman."

SHOWS EXTRAORDINARY GROWTH OF RETAIL HARDWARE BUSINESS IN SAVANNAH, GEORGIA.

In interviews with the leading hardware dealers in Savannah, Georgia, the *Savannah American* discloses the fact that the retail hardware business in that part of the country has passed through one of the best years in its history. The demands, it is said, were far greater than the supply. An enlightening interview with one of the hardware merchants of Savannah is given herewith:

"The high prices have not hurt business at all," said the dealer. "The volume of business during 1919 has been the greatest I have ever known and from the reports I get from the other houses of the city their business has been just as great as ours. It has not been a case of selling the goods, but getting them and especially in lines where steel, iron and other minerals are used.

"Most of us have been sold up for at least two months in advance during practically the entire year and just now we are not trying to secure orders in advance of February, but rather to fill those now on hand.

"In all lines of the hardware trade, retail and wholesale, the business has been far greater than was anticipated and the demand has been unusually heavy. For instance, in the stove line we have been sold up for several months and now are sold into our February output and have been forced to turn off some of the business.

"Hardware itself has been increasing in business for the past five years and the accessory departments have been overrun with orders both in the wholesale and retail end of the business. In this respect I might add that several of the hardware houses, or at least those dealing in notions, have added automobile tires to their wholesale business and the demand in this line is unusually heavy.

"The outlook for 1920 is just as good, if not better, than in the past year."

"The stove and hardware business is no different from any other," said another hardware dealer, "the only question is to make the production equal the demand, and this has been true of all the year. However, in 1920 we expect to have greater production, as material will not be so scarce and labor will meet the needs."

Don't be afraid to ask your customer's opinion; he will feel that you are interested in him. He may feel flattered, but flattery is sometimes a good thing in business.

ANALYZES MEANS OF GETTING THE MOST OUT OF A TERRITORY BY HARDWARE DEALERS.

Dealers have always bettered their business by studying the analysis of its functioning by business experts. To be actively engaged in a particular business is necessarily to be blind to some of the pressing needs for expansion and introspection. Of course, some interesting pointers can be gotten from the average person regarding a business. In fact, it would surprise merchants to find how much the man in the street could tell him that would be of interest concerning his business and its shortcomings. Wherefore, the analysis of the hardware trade by a business expert can be appreciated. John C. Kirkwood, Business Counsel, Toronto, Canada, in his address on "Getting the Most Out of Your Territory," delivered before the Ontario Retail Hardware Association at Hamilton, Ontario, Canada, sets forth some interesting facts, the result, undoubtedly, of keen study and careful weighing of the problems considered. It may sound far-reaching to say that there is not one hardware dealer who can not gain some useful knowledge by a perusal of Mr. Kirkwood's remarks, but the assertion will be borne out by a careful reading of the many suggestions given by Mr. Kirkwood as follows:

To get the most out of your territory you must know what is in it. Knowing this, you may be stimulated to take out of it as much as you can.

To know the business possibilities of your territory, you must analyze it. You must know the number of families in it, their buying capacity, and what they will buy. Knowing all this, you are in a position to go after their trade intelligently.

A thorough knowledge of your field is at the bottom of maximum business. So I say to you, know your field, and know it inside out.

My conviction is that few retailers know their fields at all well—know it, that is, in the sense that I believe they should know it. Let me submit a few questions to you for you to answer to yourself:

Have you, in your store, a record of all the factories in your local community?

Do you know how many men and women each factory employs?

Do you know the amount of wages each factory pays out every week?

Do you know how many heads of families are employed?

Do you know how many of these families own their own homes?

Do you know how these families are using their incomes? How much they spend for food, for rent, for clothing, for the general upkeep of their homes, for pleasure? And do you know how much they save?

I have spoken particularly of factories and factory workers. The same sort of information can and should be gathered concerning other classes in your local community, all those in receipt of incomes, most of which must be spent to buy the necessities of life, and most of which is spent in your own community.

Similarly, you should have a complete or near-complete information concerning your rural field. Let

me once again submit some examination questions to you, for your quiet answering:

How many farm families are there in your field, and who should do their buying in your town or city?

Who are these families?

What is the size of their individual farms?

What class or classes of farming does each farm family carry on?

What is the probable income of each family?

Who among these farmers own motor cars?

Who among them have gasoline engines, feed and litter carriers, water systems, electric power facilities and equipment, telephones, pianos, phonographs, warm air heaters or hot water heating systems, bath rooms, and so on?

Who among them are planning to build or renovate houses and barns, stables or sheds?

Who among them need better fences and gates?

This is the sort of information which, if possessed, can be turned into business, and profitable business. Once more I submit that this information can and should be possessed. Again I say, where there's a will, there's a way.

I go back to my own home town, of only 3,000 population, and to the seven years I was a retailer in it, and I confess that I knew not half the people living in it, or where they resided. And I know still less about the owners and occupants of the farms in the rural territory surrounding my own home town, where I had lived for thirty years. Not all are as obtuse or incurious as I am, but I do know, and probably you know likewise, that the ignorance of retailers of their own fields is colossal, and I would add, costly as well.

Before I pass on from this phase of my subject, namely, the possession of full knowledge concerning your field, I want to say that very frequently newcomers who have informed themselves after the manner of my suggestion have become serious competitors of old-established resident firms. Thus the mail-order houses possess, as a rule, more definite knowledge concerning a retailer's field than does the retailer himself, and use this information for their profiting and to the retailer's disadvantage. Again, the chain store idea has been developed to the menace of local retailers as a consequence of a searching survey of the retailer's field.

We all answer back to solicitation. We shop where we are invited to shop. We go to those stores which make us most welcome. We'll even pay higher prices to those who are agreeable and who serve us to our liking. This is because we are human.

I think I am safe in saying that the average retailer is a poor solicitor. He may be a good salesman, keep a good store, and stock, give a good service, but he is a poor solicitor—in person, through the mails, and through advertisements in his local newspapers.

You retailers whom I am addressing are responsive to solicitation. You give your trade to those firms which call on you regularly, and to the travelers you like best. The representatives who call on you and whom you favor, may be very indifferent salesmen, but they may be mighty good fellows, and if they have the merchandise you want, you are likely to give them your trade. You'll spar for the best prices, but

in your heart you want to give your business to the houses which send representatives to you, and to the very little business to those firms who never solicit you by a personal representative or in any other way. It is the human personal factor that counts, and you want to be called on regularly and frequently.

If all this is true in your case, be very sure it is true of those private families living in your field. If you will canvass them, at their homes, regularly and frequently, you'll get a volume of business double or treble that which you now have.

I close with the point that the retailer's customers can be induced by solicitation and suggestion to buy merchandise they have not been in the habit of buying. This business of enlarging the range of the customer's purchase is not only legitimate but may be praiseworthy. Apart from suggestion and solicitation the customer and his family may go for a long time without something or other whose early possession may add to the comfort and joy of living, perhaps lower the cost of living, and perhaps add years to the length of life. Money exchanged for possessions which save the time, strength and labor of human beings or which elevate the standards of living, is well-employed money.

I am protesting against that attitude of mind and will which leads a retailer to be just a storekeeper, one who keeps a store for the convenience of those who may want the goods he sells. I plead for a higher estimate of retailing. I would have every retailer regard himself as a public servant, with an obligation on him to make more complete the life and comfort, and to lessen the labors, of those to whom he can give service. Further, I would urge on you all to do with your might—your mental might, your heart might and your physical might—the work you have undertaken to do in the world. So do you serve your day and generation creditably—profitably to them and yourselves.

Finally, I would have you all remember that the greatest factor in doing one's best is doing one's most. Getting the most out of your field means putting the most of yourself in it. If you remember this, to do it, you will be richer in dollars at the end of every year, and richer in the consciousness of having given your community a type and amount of service which has enriched it.

SALESMAN IS NO LONGER A DRUMMER.

The drummer type of salesman has been superseded by a man of dignity and business-like manners. Advertising has changed the situation completely—for the right kind of advertising is the great educational force that tells and teaches the prospective buyer about the goods that are to be offered. And to be good advertising it must be clean and dignified. By dignified is not meant that it is to be dull and dry, but quite the contrary—it should have a touch of human interest.

If there is no commercial club or chamber of commerce in your town, it is probably because, like you, every man is waiting for somebody else to take the lead.

SHOULD GAIN COMMUNITY'S CONFIDENCE.

Now is the time for the retailer to forget all pessimistic musings and whinings and uphold the confidence of the community. Only by reassuring faith in his own efforts can the retailer spread the gospel of prosperity to those whom he serves.

SETS EXAMPLE FOR CHARACTER.

In times gone by, character was exemplified by the nobility. Today the business man is looked upon as setting the goal for the young men of his community. The vast number of inventions and the many trying conditions existing now which did not exist during the days of the nobility, demand stricter and more exacting qualities of the modern business man.

OPPORTUNITIES FOR FOREIGN TRADE PRESENTED BY BUREAU OF FOREIGN AND DOMESTIC COMMERCE.

The Bureau of Foreign and Domestic Commerce, through its Special Agents, Consular Officers and Commercial Attachés, is receiving information of opportunities to sell hardware and kindred lines in several foreign countries. Names and locations will be supplied on request to the Bureau in Washington or its District Offices. Such requests should be made on separate sheets for each opportunity, stating the number as given herewith:

31602.—A merchant in Roumania desires to purchase and secure an agency for the sale of rolling mill and steel products, copper sheets, sheet iron work, hardware of all kinds, cutlery, implements, tools, bicycles and parts. Correspondence should be in German or French. Reference.

31607.—A firm of wholesale merchants in Wales desires to purchase or secure an agency for the sale of enamel and household wares, hardware goods, etc. Quotations should be given c. i. f. Liverpool or Bristol Channel ports. Payment, cash against documents through bank of Wales. Reference.

31609.—An importer in Tunisia desires to purchase hardware, agricultural implements, etc. References.

31610.—A firm in Argentina desires to purchase or secure an agency for the sale of fencing wire. Correspondence may be in English. References.

31620.—A commercial agent in Spain desires to secure an agency for the sale of all lines of general merchandise. Reference.

31621.—An American export corporation having orders for large quantities of products, desires to obtain 100 tons of each of the following: Old iron and steel material, wagon tires, mild steel plate cuttings, scarp iron, and old horseshoes. This material is for shipment abroad and is urgently needed.

31623.—An importing company in South Africa desires to purchase fencing standards and barbed wire. Quotations should be given f. o. b. Boston or New York. References.

31625.—A firm in Spain with garage and store desires to receive catalogues and price lists of automobiles and accessories, bicycles, motor cycles, tires, etc., with a view to securing exclusive agencies. Correspondence and catalogues may be in English, but Spanish is preferred.

31614.—A commercial agent in Bulgaria desires to purchase large quantities of nails for building and carpentry. Correspondence may be in English.

31615.—The representative of an engineering firm in England is in the United States and desires to secure an agency for the sale of hardware, tools, automobiles, and accessories. Reference.

31631.—A selling agency in New Zealand desires to represent manufacturers for the sale of automobile specialties. Reference.

31634.—An American firm with a branch office in England desires to secure an agency for the sale of hardware and automobile accessories. Reference.

31640.—A man in Ireland who is about to open a number of apartment houses, desires to purchase household labor-saving devices. Quotations should be given c. i. f. port in Ireland. References.

31645.—A landed proprietor and general merchant in India desires to purchase in the United States enamelware, hardware and carpentry tools, corrugated iron sheets, etc. References.

31648.—A firm of hardware dealers in England desires to purchase or secure an agency for the sale of furnishing hardware, kitchenware, and enamelware. Quotations should be given c. i. f. Liverpool. Terms, cash, 30 days. Reference.

31650.—A trading company in India desires to secure an agency and purchase sundries in hardware. Quotations should be given c. i. f. port in India. Payment by 60 days draft. References.

31653.—An American trading company with branches in the Netherlands, Germany, and France desires to secure an agency from manufacturers for the sale of bicycles, motorcycles, automobile sundries, tires, and general merchandise. References.

31661.—A merchant in Belgium desires to purchase all sorts of metals, such as lead, copper, zinc, aluminum, etc. Quotations should be given c. i. f. Antwerp. Correspondence and catalogues should be in French. Reference.

31672.—Manufacturers in France desire to purchase screws for woodwork, No. 17-17. Quotations should be given c. i. f. French port. Payment upon receipt of goods. Correspondence should be in French. Reference.

31673.—A company in Ireland which is now building a public garage and automobile repair shop desires to purchase and secure an agency for the sale of garage equipment and automobile accessories. Payment, cash against documents. Reference.

31675.—A merchant in Switzerland desires to purchase and also secure an agency in bicycles. Correspondence should be in French. Reference.

31678.—An importer in Belgium desires to secure automobile accessories, and tractors. Reference.

31680.—A commercial agent in Italy desires to secure an agency for the sale of instantaneous gas water heaters, etc. Correspondence should be in Italian. References.

31687.—A commercial agent in Spain desires to represent manufacturers and producers for the sale of American goods. Correspondence may be in English. References.

31688.—An importer in the Dominican Republic desires to secure agencies for the sale of American goods. Reference.

31691.—A firm of manufacturers' representatives in India desires to get into touch with manufacturers and exporters with a view to inducing them to establish a division for the export of goods to India. This firm is interested in the sale of hardware sundries, and merchandise of all kinds. Goods are requested on consignment or documents attached. References.

31692.—An importer in Italy desires to purchase and secure an agency for the sale of agricultural implements. Quotations should be given c. i. f. Genoa. Payment on receipt of merchandise at Genoa. Correspondence should be in Italian or French. References.

31700.—A retail dealer in France desires to purchase bicycles and accessories, motor cycles, light motor cars and accessories. Correspondence may be in English. Reference.

31702.—A merchant in Germany desires to purchase and secure an agency for the sale of novelties in accessories and equipments in the automobile and aeroplane industries. Correspondence may be in English. Reference.

31704.—A hardware concern in Canada desires to purchase hack-saw blades. Quotations should be given f. o. b. point of shipment. Payment, cash. References.

31706.—A company in India desires to purchase and secure an agency for the sale of general hardware and small tools. Quotations should be given c. i. f. port in India. Payment, cash against delivery. Reference.

COMING CONVENTIONS.

Western Retail Implement, Vehicle and Hardware Association, Kansas City, Missouri, January 13, 14 and 15, 1920. H. J. Hodge, Secretary, Abilene, Kansas.

Mountain States Hardware and Implement Dealers' Association, Denver, Colo., January 20, 21 and 22, 1920. W. W. McAllister, Secretary, Boulder, Colo.

Texas Hardware and Implement Association, Dallas, Texas, January 20, 21 and 22, 1920. A. M. Cox, Secretary, 1808 Main Street, Dallas, Texas.

Pacific Northwest Hardware and Implement Association. Davenport Hotel, Spokane, Washington, January 20, 21, 22 and 23, 1920. E. E. Lucas, Secretary, Hutton Building, Spokane, Washington.

American Washing Machine Manufacturers' Association, Hotel Sherman, Chicago, Illinois, January 21 and 22, 1920. Raymond Marsh, Secretary, 10 South La Salle Street, Chicago, Illinois.

The American Society of Heating and Ventilating Engineers, New York City, January 27, 28, and 29, 1920. C. W. Obert, Secretary, 29 West 39th Street, New York City.

Indiana Retail Hardware Association, Athenaeum Hall, Indianapolis, Indiana, January 27, 28, 29, and 30, 1920. Ex-

hibit in same hall. G. F. Sheely, Secretary, Argos, Indiana.

Oregon Retail Hardware and Implement Dealers' Association, Imperial Hotel, Portland, Oregon, January 27, 28, 29 and 30, 1920. E. E. Lucas, Secretary, Hutton Building, Spokane, Washington.

Kentucky Hardware and Implement Dealers' Association, the Armory, Louisville, Kentucky, January 27, 28, 29 and 30, 1920. Hardware, Implement, and Vehicle exhibit. J. M. Stone, Secretary, Sturgis, Kentucky.

West Virginia Retail Hardware Association, Wheeling, West Virginia, February 3, 4 and 5, 1920. John H. Morgan, Secretary, Morgantown, West Virginia.

Nebraska Retail Hardware Association, Lincoln, Nebraska, February 3, 4, 5, 6, 1920. Nathan Roberts, Secretary, Lincoln, Nebraska.

Wisconsin Retail Hardware Association, Milwaukee, Wisconsin, February 4, 5, and 6, 1920. P. J. Jacobs, Secretary, Stevens Point, Wisconsin.

Iowa Retail Hardware Association, Auditorium, Des Moines, Iowa, February 10, 11, 12 and 13, 1920. A. R. Sale, Secretary, Mason City, Iowa.

Michigan Retail Hardware Association, Hotel Pantlind, Grand Rapids, Michigan, February 10, 11, 12 and 13, 1920. Exhibit in Furniture Exhibition Building. Arthur J. Scott, Secretary, Marine City, Michigan.

Pennsylvania and Atlantic Seaboard Hardware Association, Bellevue Stratford Hotel, Philadelphia, Pennsylvania, February 10, 11, 12, and 13, 1920. Exhibition in Philadelphia Commercial Museum. Sharon E. Jones, Secretary, 1314 Fulton Building, Pittsburgh, Pennsylvania.

North Dakota Retail Hardware Association, Grand Forks, North Dakota, February 11, 12 and 13, 1920. Hardware exhibit in Grand Forks Municipal Auditorium. C. N. Barnes, Secretary, Grand Forks, North Dakota.

Illinois Retail Hardware Association, Hotel Sherman, Chicago, Illinois, February 17, 18, and 19, 1920. Exhibit in connection. Leon D. Nish, Secretary, Elgin, Illinois.

Minnesota Retail Hardware Association, St. Paul Auditorium, St. Paul, Minnesota, February 17, 18, 19 and 20, 1920. H. O. Roberts, Secretary, 1030 Metropolitan Life Building, Minneapolis, Minnesota.

New York State Retail Hardware Association, Onondaga Hotel, Syracuse, New York, February 17, 18, 19 and 20, 1920. Exhibition in State Armory. John B. Foley, Secretary, 607 City Bank Building, New York City.

Missouri Retail Hardware Association, St. Joseph Auditorium, St. Joseph, Missouri, February 17, 18, and 19, 1920. F. X. Becherer, Secretary, 5136 North Broadway, St. Louis, Missouri.

New England Hardware Dealers' Association, Mechanics' Building, Boston, Massachusetts, February 23, 24, and 25, 1920. George A. Fiel, Secretary, 10 High Street, Boston, Massachusetts.

South Dakota Retail Hardware Association, Sioux Falls, South Dakota, February 24, 25, 26, and 27, 1920. Exhibit in connection. H. O. Roberts, Secretary, Metropolitan Life Building, Minneapolis, Minnesota.

Virginia Retail Hardware Association, Murphy's Hotel, Richmond, Virginia, February 25, 26 and 27, 1920. Thomas B. Howell, Secretary, Richmond, Virginia.

Ohio Hardware Association, Hotel Gibson, Cincinnati, Ohio, February 24, 25, 26 and 27, 1920. James B. Carson, Secretary, Dayton, Ohio.

Michigan Sheet Metal Contractors' Association, Saginaw, Michigan, March 2, 3, and 4, 1920. F. E. Ederle, Secretary, Grand Rapids, Michigan.

National Warm Air Heating and Ventilating Association, Cleveland Hotel, Cleveland, Ohio, April 21, 1920. Allen Williams, secretary, Columbia Building, Columbus, Ohio.

Southeastern Retail Hardware and Implement Association, embracing Alabama, Florida, Tennessee, and Georgia State Retail Hardware Associations, Atlanta, Georgia, May 4, 5, 6, and 7, 1920. Walter Harlan, Secretary, 701 Grand Theater Building, Atlanta, Georgia.

Stove Founders' National Defense Association, Boston, Massachusetts, May 11, 1920. R. W. Sloan, Secretary, 826 Connell Building, Scranton, Pennsylvania.

Hardware Association of the Carolinas, Imperial Hotel, Greenville, South Carolina, May 11, 12, 13 and 14, 1920. T. W. Dixon, Secretary, Charlotte, North Carolina.

Southern Hardware Jobbers' Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, May 11, 12, 13, and 14, 1920. John Donnan, Secretary, Richmond, Virginia.

American Hardware Manufacturers' Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, May 11, 12, 13, and 14, 1920. F. D. Mitchell, Secretary, 4106 Woolworth Building, New York City.

Old Guard Southern Hardware Salesmen's Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, May 12, 1920. R. P. Boyd, Secretary, Knoxville, Tennessee.

National Association of Stove Manufacturers, Boston, Massachusetts, May 12 and 13, 1920. Robert S. Wood, Secretary, National State Bank Building, Troy, New York.

National Association of Sheet Metal Contractors, Peoria, Illinois, June 8, 9 and 10, 1920. Edwin L. Seabrook, Secretary, 261 South Fourth Street, Philadelphia, Pennsylvania.

RETAIL HARDWARE DOINGS.

Illinois.

The United Hardware Company has been incorporated at 664 Maxwell Street, Chicago, with a capital of \$30,000, by Israel H. Goodkin, Mandel Goodkin, and David Hillman.

Indiana.

The Ice Hardware Company at Newcastle will retire from business.

Kansas.

L. R. Kyle has sold one half interest in the Kyle Hardware, Implement and Furniture store at Erie to his son, F. W. Kyle.

Shank and Son, Arlington, Colorado, have purchased the interest of F. W. Halsey in the Halsey and Austin Hardware Company at Culver.

H. J. Walrad and George Anderson are the new owners of the Mendell Hardware and Furniture Store at Moran.

L. E. Marsh recently purchased a hardware stock at Furley.

S. C. Neff has bought the hardware store of Kloefer Brothers.

Minnesota.

Weiss and Riba have opened a hardware store at Holloway.

J. J. Vollmer has sold his hardware business at Lake City to Beck Brothers.

Philip Hansen and J. C. Nanhested have purchased the Snell hardware and implement business at Lake Park.

John Ioenig has bought the Clark and Son hardware business at Lamberton.

James Hoagland sold his hardware store at Renville to Martz and Crams.

Harry Clark and Brothers have purchased the C. Nelson and Company hardware business at Windom.

Missouri.

The Brunswick Cash Mercantile Association, general store, hardware, etc., has been incorporated at Brunswick with a capital of \$6,000, by W. H. Raymond, W. S. Robinson, L. T. Brandt, P. B. Hartman, and others.

F. K. Allen and Son of Craig have bought the Dankers hardware stock at Corning.

C. C. Padgett has just completed an addition to his hardware store at Mt. View.

The Wellsville Hardware and Implement Company at Wellsville, has been chartered with a capital stock of \$40,000, by W. G. Martin.

The Southwestern Implement Company has been chartered with a capital stock of \$20,000, at Springfield, by I. H. Stonebraker.

C. A. Day has purchased an interest in the Mexico Hardware and Furniture Company at Mexico.

Marion T. Minten, William Wede, and A. Q. Carter have purchased the hardware business of the Carter Hardware Company at Dexter.

Charles A. Holt has bought an interest in the firm of Elmer A. Holt Implement Company at Maryville. The firm will change its name to read: Holt Supply Company.

Nebraska.

J. C. Packett has bought a hardware business at Atlanta.

A Mr. Thomas has purchased a hardware business at Monroe.

Edwards and Evans have sold their hardware business at Shubert to Ted Hill.

C. H. Heyne has sold his hardware business at Uehling to L. W. Larson.

North Dakota.

Charles Fairfield has opened a hardware store at Gardena.

Leo Fried has purchased the P. W. Myron and Company hardware business at Hettinger.

Ohio.

George B. Kelley and Harry O. Mitchell have purchased the stock of hardware of Bird Brothers at Vernon and will continue the hardware business here.

The Wheel Top and Hardware Company has been incorporated at Cincinnati with a capital of \$10,000, by George S. Brown, Glen Perrine, C. L. Bennett, and R. H. Friedrich.

Oklahoma.

J. W. Lacey has opened a hardware and implement business at Hillsdale.

John Homea has sold the Homea Hardware Store at Cushing to A. E. McNeil of Hartshorne.

Harry Brown has purchased a half interest in the Bruce Hardware Company at Clinton.

Washington.

The J. E. Bunker Company, bicycles, sporting goods, etc., has been incorporated at Tacoma with a capital stock of \$12,000, by D. Bunker, A. E. Bunker, and H. P. Jones.

Wisconsin.

E. E. Hill has sold his interest in the Crumb Hill Hardware store at Whitewater to Arthur Kildow, John Dorr, and George Crumb.

AUTOMOBILE ACCESSORIES SOLD BY HARDWARE DEALERS

NEED FOR SMALLER PARTS INCREASES.

The supplies needed on automobiles are numerous. As the automotive equipment manufacturers become more experienced, their products become more efficient and need less tampering when once installed. In fact some of the larger parts of an automobile need no adjustments. Only the smaller parts need replacing. Take the most common attachment for a motor cycle, automobile or truck—the tire. It is something that everyone owning automotive apparatus of the sort needs. It is such common knowledge that a machine lacking even one tire is helpless, that it is hardly necessary to mention such a state of affairs to impress the fact that tires frequently wear out and that they must be replaced, and that the man who handles tires is going to make the sale.

Every advertisement of a car is a boost for the accessory merchant, because no matter how complete a car is covered with supplies specifications when originally sent from the factory the attachments have to be replaced eventually. Many makes of cars of the cheaper variety are sent out without such complete equipment as many persons find they want after having become experienced drivers.

It does not require a very large capital for the hardware retailer to put in a stock of automobile accessories. The demand exists. A source of supply must also exist. Why not in the hardware store?

LACK OF GOODS CREATES DEMAND FOR AUTOMOBILE ACCESSORIES.

There is at the present time a marked scarcity of commodities and a pressing demand for goods of all kinds. The growing need and the depletion of the source of supply leave in the hands of the public a surplus of money with which they desire to purchase commodities.

This has created an abnormal demand for automobile repair and replacement materials. Old cars must be revamped and made to do until new ones may be had. New tops; new curtains; new window lights; repainting and revarnishing; new mechanical parts; anything to make the battle-scarred veteran look like a young-blood and prevent proud madam from labeling hubby a tightwad because he doesn't get her a brand new chariot.

There is a fly even in the repair ointment, for leather is very scarce and high in price, but old friend science has come to the rescue with pyroxylin coated fabrics which look exactly like hide leather to renew wornout seat cushions and backs; rubber coated goods to replace or repair old tops; leather renewer to touch up bare spots on tops and upholstery; auto enamel

to make the body anew a thing of beauty and a joy—forever. Well, let's hope not.

The hardware dealer who wishes to avail himself of a share of the automobile accessories which will be sold this year should not sit back and hope for it. He should work to gain a big share of the business. Advertising and other means of publicity should be put to the greatest use. Window displays should be arranged for the purpose of acquainting car owners with the fact that the particular hardware merchant carries automobile supplies.

IMPARTING OF AIDS TO AUTOMOBILE OWNERS GAINS CONFIDENCE.

The little aids and hints which the hardware dealers impart to the automobile owner go a great distance in gaining his confidence. Suggestions that will improve the operation of the car should be given to autoists by hardware merchants when they come to purchase accessories. Any hint or information which will in any way assist the car operator will be appreciated by him. There are automobile laws in the various states which should be part of the autoist's mental equipment if he seeks to avoid trouble. Many autoists neglect to acquaint themselves with the state regulations governing automobile driving. The hardware merchant can gain a point of advantage by disseminating the new automobile laws as they come out. A good method would be to print a digest of the state automobile laws on a small folder, and at the bottom of this circular the hardware retailer can insert a notice with regard to his handling automobile accessories.

Herewith is given a digest of automobile regulations recently enacted in Illinois. It can be used by the dealer in accessories as the basis for effective advertising:

"Don't turn corners, stop, or slow up without signals. A provision of the new statute specifies that appropriate signals must be given of such intentions. You can do this with your arms, or, if you have a closed car which prohibits seeing hand signals from the rear, you can equip your car with an automatic signaling device, of which there are many on the market.

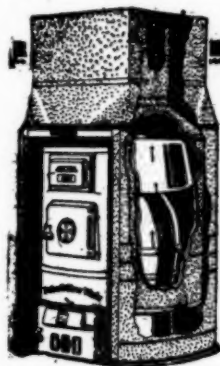
"Drivers of cars will be glad to know that the throwing of glass on a highway or street is now punishable with the new law. A fine of from \$1 to \$25 is provided for those who throw glass on any street, alley, or highway in the state. If you have an accident or otherwise spread glass on thoroughfares, you must pick it up before it does injury to vehicles which may pass."

Punctuality is a straight road to success.

ADVERTISING CRITICISM AND COMMENT

Helpful Hints for the Advertisement Writer

Connecting a hardware store's publicity with the national campaign of a manufacturer is an evidence of wisdom and a source of profit. The Philip Gross Hardware and Supply Company shows good judgment, therefore, in the advertisement reproduced herewith from the *Milwaukee Journal*, Milwaukee,



Over Half Your Coal Bill Saved

Burn Only 4 to 6 Tons of Coal During Winter

and keep every room in your house warm and comfortable by installing and heating with the new Twentieth Century heating plant—the

"Detroit Jewel" Pipeless Furnace
INSTALLATION FREE

AND NOW
With hard coal selling at \$12.50 or more a ton, the saving in coal for two winters will almost pay for the furnace, and in addition to that you'll have every room in your home thoroughly heated, which the old-fashioned stove-heating methods is unable to accomplish.

Heats the Home in 40 Minutes in Zero Weather
40 minutes after you have started the fire your house will be completely and comfortably heated in zero weather.

Burns Any Fuel
Burns hard or soft coal, coke or wood. In early Fall or late Spring a few chunks of wood will keep the house warm and comfortable.

No Wall Cutting—No Pipes to Install
The Jewel Pipeless Furnace requires only one floor grate, eliminating the necessity of floor cutting except directly over the furnace. Requires no pipe to install, hence no wall cutting or removing of plaster—saves its cost and the labor of installation.

Fire Grate Will Last Indefinitely
With proper care the grate of the Detroit Jewel Pipeless Furnace will last a lifetime. Furnaces that have been in continual use for 25 years are still in the same sound condition as when the furnace was installed.

Not an Experiment—Already in 20,000 Homes
The Detroit Jewel Pipeless Furnace is designed and built by experts with 65 years' experience and is approved by thousands.

Don't Wait—Investigate at Once!

Ph. Gross Hardware & Supply Co.
216-218-220
THIRD STREET MILWAUKEE, WIS.

Wisconsin. The name of the Detroit Stove Works in conjunction with a pipeless warm air heater has a strong selling value because it is associated in the public mind with commodities which have stood the test of time and service. This advertisement is exceptionally well worded. The reasoning is direct and convincing. From the point of view of typography and illustration, it is attractively designed and easy to read.

* * *

The only thing which saves the advertisement of W. H. Robertson from being merely a business card

printed in display type is the whimsical pun in the first line of the advertisement which is herewith reproduced from the *Binghamton Press*, Binghamton, New York. Of

We Quote Soft Prices on

HARDWARE

W. H. ROBERTSON

Phone 3638-W—233 Chenango St.

course, the space occupied by the advertisement is small. It would be difficult, though not impossible,

to describe within its narrow limits some article of hardware which would give the advertisement a specific character, and make its appeal directly to the requirement of prospective patrons.

* * *

An effective example of what is known as institutional publicity is shown in the holiday advertisement of the Prusia Hardware Company, reprinted herewith from *The Community Builder*, Fort Dodge, Iowa. It serves the necessary purpose of keeping before the



**We
Wish
You a
Very
Merry
Xmas**

We take pleasure in extending to everyone sincere wishes for a Very Merry Christmas and a most Happy and Prosperous New Year.

It is our aim and endeavor always to make our Store a Bigger and Better Shopping Place each succeeding year and you'll find us ever striving to give our customers utmost service and satisfaction. We hope to merit your continued patronage for nineteen hundred and twenty.

Prusia
HARDWARE CO.
FORT DODGE, IOWA.

customers the spirit of friendliness and service which individualizes the Prusia Hardware Company as a group of warm-blooded human beings interested in the welfare of their patrons.

* * *

ADVERTISING IS LIKE SALESMANSHIP.

Advertising, like personal salesmanship, to be successful, requires organized action. It involves the human equation. It must follow largely the line of action employed by the salesman. It must first attract attention, must then interest, then convince, create desire, and, finally, induce the reader to act.

HEATING AND VENTILATING

COVERS MANY INTERESTING TOPICS IN SCIENTIFIC TREATISE ON HYGIENE AND VENTILATION.

PART I.

The basic principles of heating and ventilating underlying the construction of warm air heaters are scientific. Hence their soundness. Science is never satisfied with its accomplishments. It does not stop to gloat over victories. In the warm air heater industry the general truths of scientific research apply. While seeking to impress the people with the superiority and advisability of warm air heating, manufacturers do not hesitate to conform their products with the plausible results of the investigations of men of science. Slowly, laboriously, observers bring forth new knowledge concerning all subjects of human relation and activity. The last word has not been said on the subject of heating and ventilating. In all parts of the modern world men discuss questions pertaining to the best method of insuring healthful heating and ventilation for dwellings. Many of the results of investigations and experimentation are interesting. Recently, Professor Leonard Hill, M. B., F. R. S., read a paper before the British Commercial Gas Association of London, on the subject of "Hygiene and Ventilation in Relation to the Housing Problem" which has all the indications of being the result of careful and long investigation and observation. Herewith is reprinted an extract from Professor Hill's paper appearing in *Domestic Engineering* of London, England:

Three most important national problems require to be solved in dealing with heating and ventilating in the new housing schemes. These are: (a) Coal economy. (b) Smoke abatement. (c) Hygienic conditions of living and working.

On the matter of coal economy. Our habits of burning crude coal for heating and producing power in our homes and workplaces is bringing us rapidly to the day when cheap coal will be no longer available in this country. Yet cheap coal and iron are the basis of our power; they bring us food and raw materials which we can not grow. Destroy the availability of these and the nation as at present constituted must come to an end; the population must dwindle and emigrate to other and more favored lands. It is a ridiculous and dangerous anachronism that we should persist in our dirty and wasteful methods, digging up coal, transferring it by rail, boat and cart to a distance, burning it crudely and ignorantly, wasting 90-95 per cent of its energy, blackening our cities with soot and ashes and hiding the heavens with a pall of smoke.

It is estimated, for example, that in Manchester as much as 50 per cent of the sunlight is cut off by

smoke, and in Leeds no less than 40 per cent. These are facts which must be taken to heart by the authorities concerned with the promotion of new housing schemes, for on a conservative estimate no less than two million tons of soot are deposited each year on buildings, vegetation, etc., by domestic chimneys—a total which represents 6 per cent of all the coal consumed in the country. What this means is shown by the following considerations:

1. The smoke nuisance represents a prodigious waste of the valuable substances present in coal, most of which, if properly and scientifically treated in gas works, could be saved for the use of man.

2. The shutting off of daylight involves a vast expenditure of coal and of human labor in the production of artificial light. A foggy day in London necessitates an additional use of gas of some 25 million cubic feet, produced at an expenditure of 2,000 tons of coal. And the increased use of artificial light helps to overheat the workshops and fatigue the workers.

3. Great loss is occasioned by the slowing down of transport of people and goods necessitated by the fog.

4. The soot, etc., produced damages buildings, vegetation, pictures, fabrics, etc. The damage to buildings in London has been estimated at an amount equivalent to £4,000,000 a year.

5. In order to avoid the depressing effect of the dirt thus created we are driven to the use of dark hangings, wall and floor coverings, and clothes; and what this means in light-wastage is shown by the following values, which express the ratio of light scattered from a surface to that received by various substances—white paper 80; yellow 40; green 18; black cloth 1.

6. Coal smoke has a most destructive influence on vegetation. Fresh green vegetables, for instance, which would make good the supply of the vitamins too often wanting in the diet of the citizen, can not be grown in town gardens. The smoke and the want of allotments is most serious, because a proper supply of these accessory food substances, growth principles, which are now recognized to exist in fresh natural foods, and of which the processes of milling and preserving rob us, is of the utmost importance to the up-bringing of healthy children and the maintenance of health in adults. The lack of vitamins is a cause of malnutrition, tuberculosis, rickets (which affect 50 per cent of the children of the poor in a big city like Glasgow), and decay of the teeth. No tooth-brush drill or dentistry will arrest this latter evil, but proper feeding and open air and exercise will.

The impairment of general health by vitamin-poor diet, such as white bread, vegetable oil margarine, sugar and tinned foods, is, I believe, colossal. Mothers

fed on food which is poor in vitamins will have a deficiency of these substances in their milk, and thus their breast-fed babies will suffer. Vitamins (some of which are easily destroyed by cooking) are present in milk, butter, eggs, the germ of wheat and other grains, cod liver oil and the fat of cellular organs, but not in store fat; they are also present in fresh green foods and fruits, and more are secured in milk of grass-fed than of stall-fed cows. What we want, then, is a diet including grass-fed, not stall-fed, milk, butter, not vegetable oil margarine, flour, not white, but containing the germ, fresh green foods and fruits. We also want an appetite and a digestion made good by open air and exercise, so that we may eat enough to secure sufficient vitamins and the various "building stones" required for our body substances. But—

7. The depressing outdoor conditions caused by the smoke nuisance drive people away from outdoor exercise and games to indoor amusements and occupations. This indoor life, with its stagnant, over-warm atmosphere, has a most serious effect on human vitality, causing the fires of life to burn weakly, making the breathing shallow, the circulation feeble, the appetite poor, the digestion impaired, reducing strength and comeliness, and diminishing vigor and the enjoyment of life.

We have now arrived at the third of the national desiderata to be kept in view when planning heating and ventilation in the new housing schemes—hygienic conditions of living and working. The crowded and unhealthy indoor life lived by so large a section of the population is responsible for many of the blots on our escutcheon of public health. For instance, taking large areas Dr. J. Brownlee finds that while the death rate has generally lessened, the correlation between greater density of population and higher mortality, first established by Dr. Farr of the General Register Office, has not been reduced by better sanitation, clean water supply, good drainage, clean streets, clean handling of food, reduction of flies and lessening of smoke pollution. It is, I believe, very largely dependent first on bad feeding, and secondly on crowded indoor life in stagnant air and want of exercise and quiet peaceful occupations out of doors.

To the same causes may be attributed the facts that, as the official records show, at least a million children of school age are so physically or mentally defective as to be unable to derive reasonable benefit from the education the State provides; that at least a million recruits were C3 men; that there is 16 years' difference between the expectation of life in a city like Manchester and in the healthiest districts; that between the ages of 40 and 50 the death rate in unhealthy districts is two to three times that in the healthiest districts; that the average age of death of those who survive over the age of 15 is 67 in purely agricultural districts, and 49-50 in purely industrial districts; that more than twice as many children die under five in the industrial than in the rural districts; that the death rate of infants may be eight times heavier in the worst than in the best districts of a city.

We have seen tens of thousands of weedy citizen recruits, after being well-fed, exercised in the open air, exposed to weather, and given plenty of rest,

broaden out and become handsome, virile soldiers. Delicate children—those subject to colds, those with weak hearts, those over-nervous in temperament, ill-nourished and in danger of consumption—when sent to open-air schools, and treated therein by good food, adequate rest and exercise in the open air, grow so fast that their growth curve can not be contained within the official chart. Consumptives and feeble feverish people are treated in open-air shelters, and to their great advantage live in the open in the coldest weather. Cows do better, yield more milk and improve more in conditions when wintered out than when stall-fed. Stall life is the cause of consumption in them.

All this is known; and yet the mass of people, imbued with traditional fear of cold, shut themselves and their children within doors, over-clothe their bodies, over-heat their houses, and lead a caged life wholly different from that of the wild men who transmitted to us, their descendants, a body tuned to fight the weather through hundreds of thousands of years of evolution.

The discomfort produced by the close air of crowded places is appreciated by most of us, but the common belief that the close atmosphere acts harmfully upon us through the chemical impurity of the air is erroneous. There is neither too little oxygen nor too much exhaled carbonic acid in such air, nor is there present in it any subtle organic chemical poison supposed to be exhaled with the breath. The concentration of oxygen is never reduced in the most crowded places to anything like the extent found in the thin air of mountain health resorts. The concentration of carbonic acid in the depths of the lungs is always kept at about 6 per cent of an atmosphere by the breathing mechanism, and such alteration of the concentration of carbonic acid as occurs in crowded places has no effect on this. A little more carbonic acid only makes us breathe a little deeper and ventilates our lungs a little more.

Natural ventilation, brought about by the difference of temperature between the outside and the inside air, suffices to prevent air in ordinary crowded rooms from ever becoming seriously impure in the chemical sense. It is different, of course, in hermetically-sealed places such as a submarine. Submarine crews find 3 per cent of carbonic acid is about the limit they care to endure. As to the presence of organic poison in crowded rooms, careful and repeated experiments of the best physiologists fail to substantiate this belief.

The chemical theory has done the greatest harm to the development of our cities and the public health, for the State, satisfied with a standard of chemical purity, has allowed slum dwellings, sky-scrapers, and cavernous places of business to grow up in place of garden cities. The land exploiter and the jerry-builder too have had their way, and have brought us by now to evil and almost irreparable conditions of housing. The physical conditions of the atmosphere are the important thing, and these may be wholly wrong when the chemical purity is good. Far more ventilation is required to make these conditions right.

Close air produces its effects in two ways:

1. Through lack of adequate cooling and evaporative powers;

2. Through spread of infection from carriers of the germs of disease.

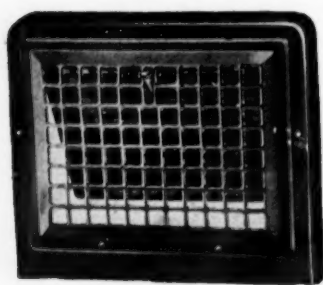
The wild animal maintains itself at body temperature in the face of the cooling power of the environment. Cool moving air is the natural stimulus to activity and appetite, to deep breathing, active circulation, thorough oxygenation, and good digestion. Hence the perfect fitness of the wild animal. It does not suffer from colds, bronchitis, dyspepsia and the thousand ailments of the indoor worker. Neither does the shepherd, the hunter or the fisherman.

The cooling and evaporative power of the air acts not only on the skin, but also upon the respiratory membrane. Cool air has a low vapor tension compared with warm humid air, and when breathed promotes evaporation from and flow of blood and lymph through, and secretion by, the respiratory membrane, the natural defences against infection.

(Continued next week.)

MANUFACTURES AN EXTENSIVE LINE OF DISTINCTIVE REGISTERS.

A complete line of floor, wall, and baseboard registers is manufactured by the Columbian Hardware Company, Cleveland, Ohio. The management of the register department of this company is under the direction of R. K. McCartney.



Columbian Base Board Register, Made by The Columbian Hardware Company, Cleveland, Ohio.

Columbian Registers are manufactured in the steel lattice design. Semi-steel floor registers, steel and cast iron register faces and cold air faces are also constructed by The Columbian Hardware Company in all the standard sizes.

In the illustration herewith is depicted a Columbian Base Board Register. This article is made in two pieces. It is practical in every respect. Its air capacity is sufficient to take care of standard pipe when installed. This register can either be installed by using wood screws or by strapping it to the register box. By either method it is securely fastened. The metal of which the Columbian Base Board Register is made is of a high quality and selected for the particular purpose for which it is used. The Columbian Hardware Company, Register Department, Cleveland, Ohio, will send catalogue and price sheets to dealers interested in its products.

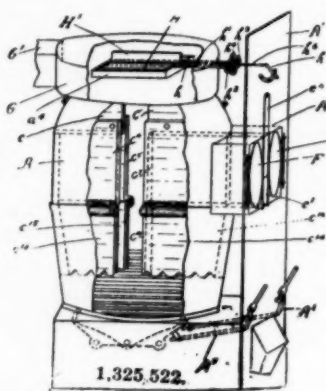
PRODUCES AN ALL STEEL DAMPER.

A heavy, strongly made damper is manufactured by The S. M. Howes Company, 42 Union Street, Boston, Massachusetts. The trade name of this product is The Yankee Hot Air Damper. It is said to give universal satisfaction. Being made entirely from steel, the action of heat upon it has very little deteriorating

effect. Therefore, it will last an uncommonly long time. Leading jobbers throughout the country handle The Yankee Hot Air Damper. Free samples can be obtained by writing to The S. M. Howes Company, 42 Union Street, Boston, Massachusetts.

GETS PATENT FOR WARM AIR HEATER.

Under number 1,325,522, United States patent rights have been granted to Charles C. Loder, Dayton, Kentucky, assignor of one-fourth to Gustav Haffner, one-fourth to Louis Haffner, and one-fourth to Edwin Haffner, Cincinnati, Ohio, for a warm air heater described in the following:



In a warm air heater the combination of a warm air heater body, a diaphragm with imperforate sides and dividing the body of the warm air heater into combustion chambers and having in it an air chamber which communicates at its lower end with the combustion chambers, means for admitting external

air to the air chamber, and dampers adapted to cause the gases from either combustion chamber to flow beneath the diaphragm and into the other combustion chamber.

TELLS OF ASBESTOS PRODUCTION IN THE UNITED STATES.

On the principle that the dealer and installer of warm air heaters should familiarize himself with all the materials used in the trade, it is of interest to know something about the production of asbestos in America.

The supply of asbestos of the lower grades in the United States is large, but the supply of that of the higher grades, suitable for spinning, is deficient. The domestic production of asbestos of the spinning grades should therefore be stimulated, but it can be stimulated only by increasing the use of asbestos of the lower grades, which occur in the same deposits and constitute a large part of the material mined.

Asbestos has been considered a war mineral in Canada but not in the United States, where the domestic production has lately declined, even in the face of increased demand and prices.

Embargoes on transportation and lack of labor retarded production in 1918, so that the total domestic output marketed during the year, according to J. S. Diller, of the United States Geological Survey, Department of the Interior, was only 802 short tons, valued at \$121,687, as compared with 1,683 short tons, valued at \$506,056, marketed in 1917. The output in 1918 was therefore only about 48 per cent of the quantity and 24 per cent of the value of that of 1917. The decrease in the rate of production was greatest in the higher grades.

Asbestos was produced in five states—Arizona,

California, Georgia, Maryland, and Oregon. Georgia is the largest producer, but it furnishes only fiber of the lowest grade. California ranks next, and this state, as well as Maryland, increased its output in 1918 and produced a better grade of mill fiber. Arizona ranks third, with five active producers. Its output is chiefly spinning fiber but includes a large proportion of mill fiber.

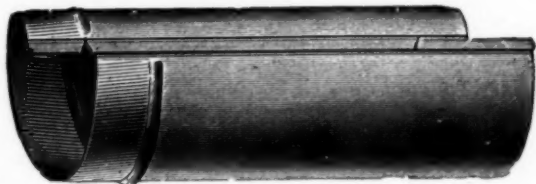
As the asbestos field of Arizona is being developed and the high quality of its fibre more fully appreciated, confidence that it is a permanent producing field is increasing, and it is receiving growing attention from manufacturers of asbestos. A mill has been operated for some time by the Arizona Asbestos Association, on Ash Creek, and another mill is in course of construction by the Arizona Ores and Asbestos Company to work the dumps of short fiber on the Sierra Ancha, about thirty miles northeast of the Roosevelt dam.

The continuity of the Globe asbestos field, Arizona, eastward into the White Mountain Indian Reservation is shown not only by the extension of favorable geologic conditions into the reservation but by the occurrence, attested by competent observers, of asbestos in considerable quantities at several places in the reservation. Congress has recently opened the reservation to prospectors and miners of metallic ores, and although asbestos is not mentioned in the law and permits to mine it are not granted, it is one of the most valuable minerals in the reservation.

Our principal source of asbestos is Canada, 94 per cent of whose output of crude and mill fiber in 1918, 134,813 tons, was shipped into the United States duty free, so that the United States has thus become the greatest manufacturer of asbestos in the world, while Canada is its greatest producer. Besides the Canadian fiber the United States imported nearly 3,000 tons from South Africa in 1918. As compared with these imports the domestic production of asbestos in the United States is very small, yet our asbestos is of sufficiently high quality, especially the spinning fiber of Arizona, to merit the interest of the American miners.

PIPE CAN BE JOINED WITHOUT TOOLS.

The Michigan Safety Furnace Pipe Company, Detroit, Michigan, manufacturers of the nested warm air pipe shown in the illustration herewith, state there is not a single tool required to put this nested pipe



Michigan Nested Warm Air Pipe, Made by Michigan Safety Furnace Pipe Company, Detroit, Michigan.

together. Just lock each end. There is no hammering necessary and each joint is a finished product after being locked. The Michigan nested warm air pipe is said to be the only nested pipe made that has a safety locking device at both ends. The lock pre-

vents the pipe from sagging when it is put together, and it cannot collapse unless it is taken apart. This pipe comes done up in fifty-foot packages, in a black iron cask with wooden ends, and can be left in the original package until it is used up. It requires no heavy bulky crates and is claimed to occupy but a small portion of the space needed for common round pipe. Those interested should get into communication with The Michigan Safety Furnace Pipe Company, 113-118 East Fort Street, Detroit, Michigan.

SCIENTIFIC WRITERS CORROBORATE THE NECESSITY OF COMBINING HEATING AND VENTILATION.

The combining of heating and ventilation is corroborated by much scientific evidence as being the most practical method of meeting the problem of warming and supplying fresh air in dwellings. The subject of heating and ventilating has been given almost as much consideration by the physician as by the engineer. This is due to the preponderating effect air and heat in the home have upon the general health of the public. Contrary to scientific knowledge, some manufacturers have endeavored to separate heating from ventilation. The results have over and over again proved the fallacy of this method. Where heating plants have been installed without the slightest consideration of supplying fresh air, a law of health has been violated. If it should be put to a test, it is believed that the majority of doctors would prefer the insurance of fresh air before they would sanction a high degree of warmth minus adequate ventilation. But there is no need for the negation of one to supply the other. The average warm air heater properly furnishes warmth and air in sufficient and healthful quantities. That this combination is in accordance with scientific investigation and justified by facts is the inference to be drawn upon reading expositions by various men of note on the subject.

Illustrative of the many volumes written on or treating with the subject of heating and ventilation is *A Treatise on Hygiene and Public Health*, by Thomas Stevenson, M. D., F. R. C. P., and Shirley F. Murphy, Medical Officer of Health of the Administrative County of London. A comparatively large portion of this book is devoted to Warming and Ventilation. In the very introduction the authors declare that heating and ventilation should be combined—should be treated as one and inseparable. Substantiating the contention of many writers on the subject—that the problem of heating and ventilation should be considered jointly—Dr. Stevenson and Mr. Murphy write:

"The closely related subjects of warming and ventilation may be regarded mainly as specially technical departments of the sciences of *heating, hydraulics, and pneumatics*. In dealing with the problem relating to the warming of buildings we have primarily to consider the production and distribution of heat; and with the problems in ventilation we are primarily concerned with the mechanical processes involved in the motion of the air. But the continuous production of heat requires, as a rule, a continuous supply of air

which may be used for the purpose of ventilation, and the distribution of heat is frequently dependent upon the distribution of heated air or heated water. Moreover, the air which is supplied for ventilation often requires to be warmed. It is not, therefore, practicable to consider the two subjects separately, but with the view of arranging the facts with which we have to deal in some sort of order, we shall first consider some of the most important points in the production and measurement of heat and the effects produced by heat upon the physical properties of air and other bodies, and then call attention to some of the fundamental phenomena observed in the motion of air and other fluids, before proceeding to a discussion of actual problems in warming or ventilation or both combined."

Seldom has the fact been more clearly or directly stated—that heating and ventilation are inseparable—than by the scientists in the above paragraph. The authors then set forth a technical analysis of heat and air and their correlation.

Facts in the nature of those given herewith should not serve only to add to the already accumulated data that warm air heating is the logical system of supplying warmth and air in the home, and that, therefore, the warm air heater dealer is handling the most reliable heating system. They should be disseminated. Dealers should use them in their advertising. Likewise, manufacturers can make use of this data by connecting the actual features of their products with the facts expressed by various men of science who have devoted time and study to the subjects of heating and ventilating. Wherever an industry has advertised facts—and there are many of them—in connection with the product it manufactured the results have always been successful. Whether undertaken collectively or individually the matter of educational publicity should not be allowed to founder because of inertia. There is too much at stake. Of course, business might be as well as could be expected at the time being. But no farsighted business man fails to seek expansion and to insure future business.

INSURES PROPER INSTALLATION.

Where pipes are used in connection with warm air heating, it is essential that the ducts be especially adapted to the conduction of warm air. It is well known to dealers and installers of warm air heaters that much of the value of warm air heating is often lost because of faulty installation, due, in the main, to the use of inferior pipes. Likewise, there are many other details of construction that must be considered in order to gain satisfactory service and economical usage from warm air heaters. The W. E. Lamneck Company, Columbus, Ohio, declares that the simplified fittings of its manufacture meet all the exacting requirements of proper installation. Not only are they up to par, but, they declare, installation is easier. Because of the compactness of a stock of these fittings a larger assortment can always be had on hand. The fittings manufactured by this company are the result of many years of experience in actually installing all types and sizes of warm air heaters. Prices and other

desirable details can be obtained from the W. E. Lamneck Company, Columbus, Ohio.

UTILIZE ALL BRAIN ENERGY.

Success depends upon the amount of brain energy expended. If utilized to the greatest extent, there is enough energy in the average brain to bring to a successful conclusion any reasonable enterprise undertaken. It will always be noted that the man who fails is, in most cases, lazy. He may be bright and resourceful, but he does not apply his brain power. If he did he would not fail.

DEVICES AID FUEL COMBUSTION.

The direct draft and perfect damper regulation in the Great Northern Pipeless Warm Air Heater, manufactured by the Wells Furnace and Supply Company,



Great Northern Pipeless Warm Air Heater, Made by the Wells Furnace and Supply Company, St. Louis, Missouri.

St. Louis, Missouri, illustrated herewith, is adapted to many grades of fuel. The control of the draft, which is a factor of great importance in the proper combustion of the fuel, is said to be so arranged that it can be modified by the operator of the Great Northern Pipeless Warm Air Heater. The large register face in the pipeless warm air heater depicted herewith is a feature which adds to the utility of this product. A large amount

of cold air is admitted thereby and as a consequence—considering the unusually big radiation surface in this warm air heater—there is produced a great quantity of warm air. The circulation or convection of the air is also enhanced by means of this arrangement. It can be seen by a more vigorous circulation of both cold and warm air that the value of the pipeless warm air heater is increased. More space can be heated in this manner. In construction the Great Northern Pipeless Warm Air Heater is massive. An all cast radiator of large dimensions is installed in this pipeless warm air heater. The Faultless Triangular Grate built in this heater can be removed in a comparatively short time without disturbing the fire. There are other details of construction in the Great Northern Pipeless Warm Air Heater equally interesting to dealers who desire a pipeless warm air heater which will insure satisfaction to users, declare the makers. Write to the Wells Furnace and Supply Company, 1522 Olive Street, St. Louis, Missouri, for complete information concerning the Great Northern Pipeless Warm Air Heater, which will be furnished promptly upon request.

Duty is one and invariable; it requires no impossibilities, nor can it be disregarded with impunity; so far as it exists, it is binding so as on no account to be neglected.—Thoreau.

PRACTICAL HELPS FOR THE TINSMITH

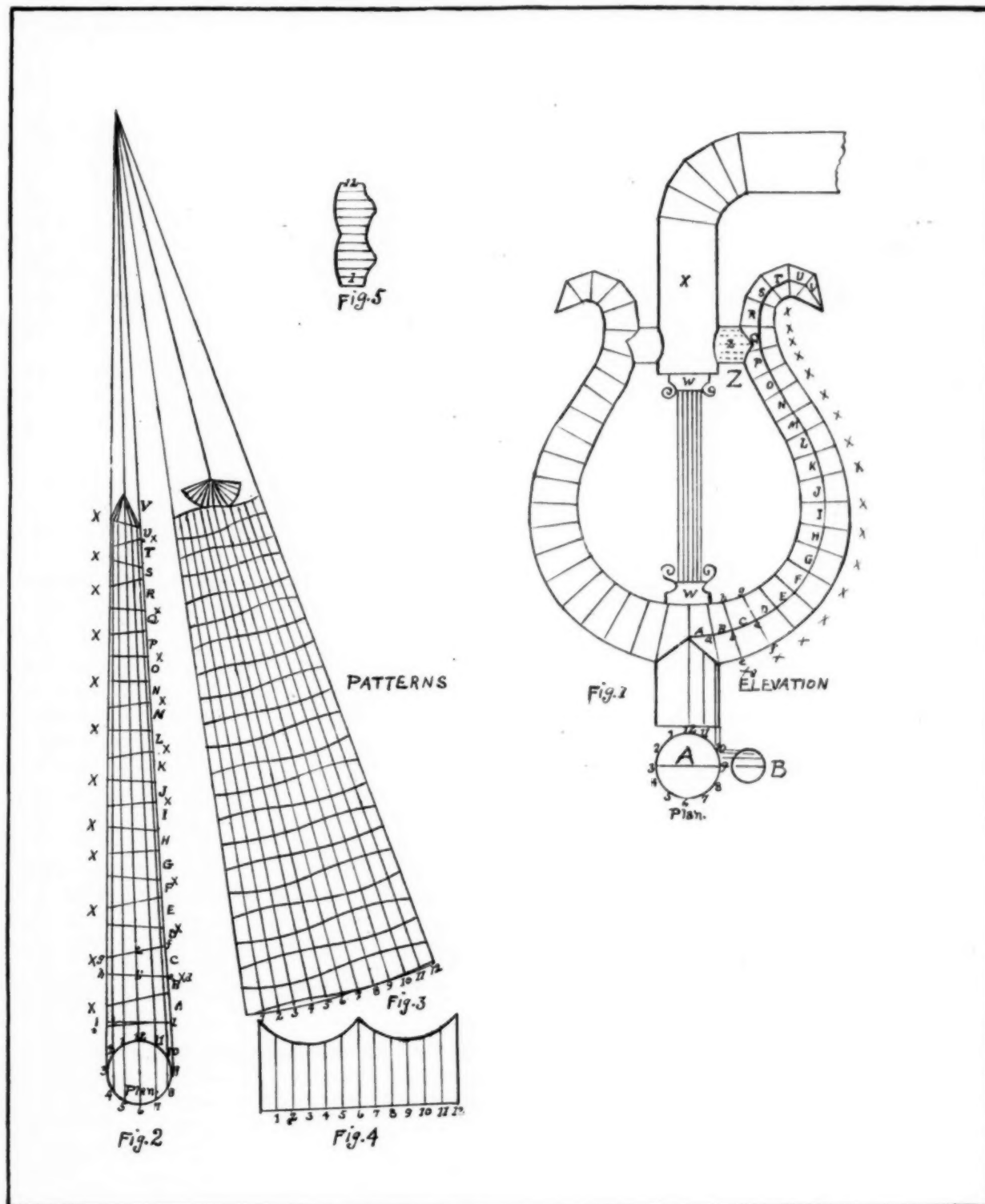
PATTERNS FOR ORNAMENTAL STOVE PIPE.

By O. W. KOTHE.

In the very long ago there appeared in AMERICAN ARTISAN AND HARDWARE RECORD this enclosed stove

their living around stoves and pipes and such repair work will be interested, and some may want to make one. Observe the smoke must pass up the sides and then joins the main pipe X with the tee Z.

In Figure 1-A is the section through main pipe X and B is the section through Z. This shows an



Patterns for Ornamental Stove Pipe.

pipe which is in the form of a lyre. It is an interesting piece of work and many tradesmen who make

ordinary tee miter. The center line of lyre as A-B-K-R-V is first described to suit the size and curva-

ture. This is then divided up to make miter lines and can be done by the bisecting marks.

This gives a treatment the same as a tapering elbow. The bisecting marks of elevation are an aid in the transferring of miter lines to Figure 2. The plan section is drawn and the radial lines drawn through all miter lines to the apex. The patterns are all developed in the one girth as shown in Figure 3. Laps must also be allowed. Other tee patterns are laid out the same as we have shown in these columns in numerous times. This gives Figure 4 and Figure 5, while the elbow above X is optional; it may be required or it may not, and is more often a boughtened one.

Such a lyre is best used on a chimney that has a very strong draft. Slip joints should be made between B and T and at connecting pipe Z to enable cleaning out at intervals. The part W-W is made of metal, allowing scrolls to form and to plant light wires or rods to give the appearance of chords. Workmen interested in such work will find it interesting to make for window display if for nothing else.

GOVERNMENT GIVES STATISTICS ON COPPER OUTPUT OF 1919.

The production of copper in the United States in 1919 was markedly smaller than in 1918, according to preliminary figures and estimates collected by B. S. Butler, of the United States Geological Survey, Department of the Interior, from all plants that make blister copper from domestic ores or that produce refined copper. At an average price of about 19 cents a pound, the output for 1919 had a value of \$243,000,000, as against \$471,000,000 for 1918.

The figures showing the smelter production from domestic ores represent the actual output of most of the companies for the first 11 months of the year and the estimated output for December. A few companies gave no figures for November but furnished estimates of the combined output of November and December. The production of blister and Lake copper from domestic ores was 1,278,000,000 pounds in 1919, against 1,908,000,000 pounds in 1918 and 1,224,000,000 pounds in 1913.

The supply of refined copper (electrolytic, Lake, casting, and pig) from primary sources, domestic and foreign, for 1919, is estimated at 1,800,000,000 pounds, compared with 2,432,000,000 pounds for 1918 and 1,615,000,000 pounds for 1913.

According to the Bureau of Foreign and Domestic Commerce, the imports of copper in all forms for the first 10 months of 1919 amounted to 346,855,000 pounds, against 575,800,000 pounds for the 12 months of 1918.

The exports of pigs, ingots, bars, plates, sheets, rods, wire, and like copper products for the first 11 months of 1919, as determined by the same bureau, amounted to 496,350,000 pounds; the exports for the 12 months of 1918 were 744,429,000 pounds.

At the beginning of 1919 about 180,000,000 pounds of refined copper was in stock in the United States. Adding this quantity to the refinery output for the year shows that the total available supply of refined copper

was about 1,980,000,000 pounds. On subtracting from this total the exports for the first 11 months and the estimated exports for the last month, and assuming that there was no change in stocks, it appears that the supply available for domestic consumption in 1919 was considerably less than the 1,661,000,000 pounds available in 1918.

SHEET METAL CONTRACTOR EXPLAINS HIS METHOD OF ADVERTISING.

There is no unproductive season for the sheet metal contractor who advertises persistently and intelligently, declares Charles Hahn, 5205 Irving Park Boulevard, Chicago, Illinois. His advertisements are models of good humor, friendliness, and persuasion. As a trade-mark for his business, he uses the words, "Hoot Mon!" with the picture of an extremely wise-looking owl between the words. Not only does he keep up a persistent publicity in his local newspapers, but he sends out circulars to his mailing list at regular intervals.

His circulars are unique. They are not dry, uninteresting statements of service or material, but shrewdly whimsical appeals for business which the most serious-minded prospective customer is sure to read from beginning to end. A four-page circular which he distributes is made up in the form of a bulletin, bearing the headline of "The Weakly 'Bull-It-In,' Published Spasmodically." In the subjoined letter he attributes his success to following the advice on advertising given in these columns:

TO AMERICAN ARTISAN AND HARDWARE RECORD:

For years I have read your continual pounding at advertisers to keep everlastingly at it; and I have consistently followed your advice to my gain.

Why will a sheet metal contractor be satisfied to use an old stereotyped advertisement year in and year out?

I never have a dull season. I do not make the mistake of discontinuing my advertising when I am busy. I get my personality into the advertisement as much as possible. It counts. People have a jolly ring to their voices when they phone me an order. I try to keep my name before them all the time and also to make good on complaints as sincerely as Marshall Field.

A whole lot of my stuff was gleaned through the good old AMERICAN ARTISAN. Long life to it!

Yours truly, CHARLES HAHN.
Chicago, Illinois, January 6, 1920.

WILL IS AT BOTTOM OF EFFICIENCY.

At the bottom of mental efficiency is the will. You can love to do things, you can know how things are done, but without the will to begin and to toil, the desire and the knowledge are wasted.

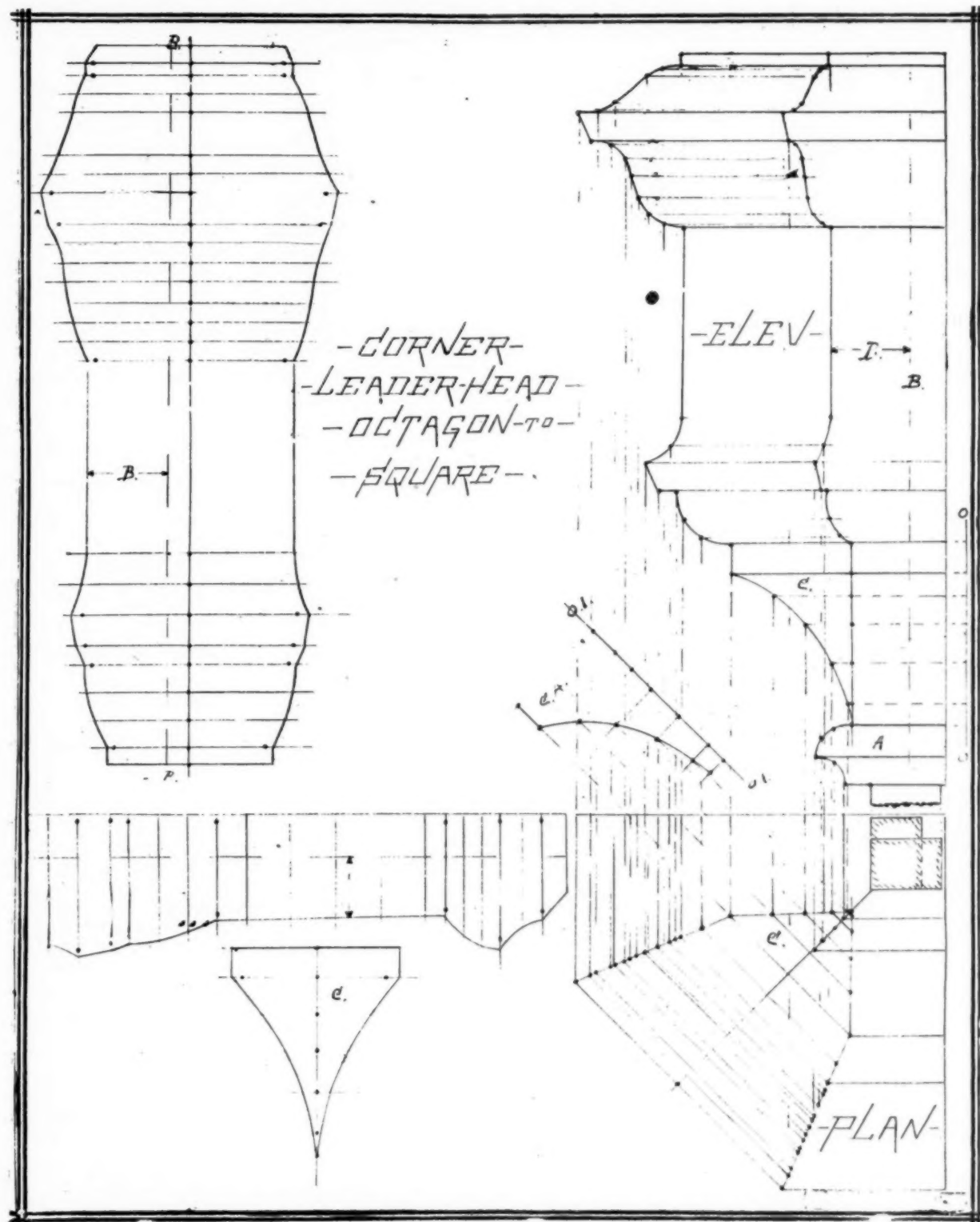
Of all pitiful failures, the fellow who knows what should be done, without knowing how to do it, is the most dismal. Between him and achievement stands action. He has never tried to do the thing, and consequently cannot appraise the value of his knowledge. He lacks the will to get into action.

DESIGN FOR SQUARE LEADERS.

BY G. L. GRAY.

This makes a very attractive design for square leaders. The elevation and plan show a corner leader head, although a side wall head can be very easily obtained by taking dotted line B in elevation as center.

velop the change of profile C-A draw lines from points in section C of elevation to line oo; then transfer this line of spaces as shown o-i-o-i. From these points draw indefinite lines. Place T square parallel with lines in section C of plan. Draw lines from all points intersecting lines of corresponding number in C-A. A line drawn through these intersecting points will



Pattern for Corner Leader Octagon to Square.

The upper portion is octagon and the bottom member A is square, section C being octagon to square which is the difficult part as a change of profile is necessary. The plan shows the square leader on either wall being far enough away from wall to permit room for square leader hook which is covered by an ornamental leader band. The miter line in elevation is not necessary, I show it so you will know how it is developed. To de-

give the modified profile through section C. All the patterns can be stepped off with spacers from plan.

DESCRIBES PECULIAR DECAY OF TIN.

Describing the peculiar structure of Banco tin on which had appeared decayed spots, Professor Ernst Cohen, in his paper on "Allotropy of Metals," read

before the Faraday Society, England, says: "The tin would swell and develop warts and drops which would adhere to a copper wire as if they consisted of mercury." Detailing the chemical structure of the metal while showing this abnormal state, Professor Cohen continues: "A badly corroded block of Banco tin, originally 35 kilogrammes in weight, had been returned by a Moscow firm to Rotterdam because a dilution was suspected. The tin had turned grey and the powder was still dropping from the blocks. Analysis proved that the tin was very pure. It did not contain more than 0.05 per cent impurities.

"A long time ago an antique dish was found near Appleshaw in Hampshire, Eng'and. It is now in the British Museum. The composition by analysis is tin, 94.35 per cent; lead, 5.06 per cent; traces of copper, oxygen, carbonic acid. The extraordinary molecular change which the metal has undergone is of more interest to the physicist and metallurgist than to the antiquary. The metal is not much oxidized. Yet it is so exceedingly brittle that it can be broken with the fingers. The effect of time has resulted in a complete alteration of the molecular structure, the mass of the alloy being converted into an agglomeration of crystals and to this brittleness is due. On melting and casting a small fragment, I found that the crystalline structure disappeared and the metal gained its original toughness. The vase dated from 350 years before the Christian era and had probably been lying in Hampshire for about twenty-two centuries. The mean annual temperature of this locality, I am informed, lies below 18 degrees Centigrade.

"I applied to several directors of the museums in Holland and other countries for information in regard to the decay of tin. They confirmed the statement without being able to supply specimens. A few years ago I obtained possession of a tin medal which was badly affected by the "tin pest" on both sides. The warts of grey tin had reached a height of several millimeters. The medal was cast about 1692 by the Lyden medal maker, Johannas Smeltzing, and the disease had two centuries to develop."

If it takes 200 years for the disease to develop, the value of tin as a roofing material—or as a matter of fact, as a metal for almost any usage—is not challenged.

IS DETRIMENT TO YOUR BUSINESS.

Have you been in the habit of saying cutting things about persons who come to look and do not buy? Not of course to their faces, but in hearing of your salespeople and of your personal friends? And have you allowed your help to indulge freely in such remarks, so that there has come to be in your place of business an atmosphere of scorn and contempt regarding "shoppers?" It should not be done. The effects on your business are detrimental in the end.

NOTES AND QUERIES.

Copper Tubing.

From R. B. Fitzgerald, Madison, South Dakota.

Where can I buy copper tubing?

Ans.: A. C. Dallas and Son, 223 North Jefferson Street; Purvin Metal Products Company, 53 West Jackson Boulevard, and Charles H. Besly and Company, 118 North Clinton Street, all of Chicago, Illinois.

"Zero" Cream Refrigerating Tank.

From C. C. Bruscke and Son, Good Thunder, Minnesota.

Please advise where we can obtain the Zero cream refrigerating tank.

Ans.: Heinz and Munschauer, Buffalo, New York.

Tinners' Tools.

From Dowagiac Drill Company, Dowagiac, Michigan.

Can you tell us who sells tinners' tools either new or second hand?

Ans.: 1. Joseph T. Ryerson and Son, 16th and Rockwell Streets, Chicago, Illinois; Berger Brothers Company, Philadelphia, Pennsylvania; Bertsch and Company, Cambridge City, Indiana; Dreis and Krump Manufacturing Company, 2915 South Halsted Street, Chicago, Illinois; Friedley-Voshardt Company, 733 South Halsted Street, Chicago, Illinois; Frederick J. Knoedler, 68 North Second Street, Philadelphia, Pennsylvania; Marshalltown Manufacturing Company, Marshalltown, Iowa; Niagara Machine and Tool Works, Buffalo, New York; Viking Shear Company, Erie, Pennsylvania. 2. Second hand tinners' tools can be purchased from Charles Moliter Machinery Company, 118 South Clinton Street, Chicago, Illinois.

Small Turning Machine.

From S. B. Egbert, Hood River, Oregon.

Kindly inform me where I can get a Peck, Stow and Wilcox small turning machine.

Ans.: Peck, Stow and Wilcox Company, Cleveland, Ohio.

Spring Motors.

From James S. Croop, Goshen, Indiana.

Will you please inform me who manufactures spring motors?

Ans.: D. S. Plumb, 73-77 Norfolk near Central Avenue, Newark, New Jersey; Waterbury Clock Company, Waterbury, Connecticut, and Reeves Manufacturing Company, Milford, Connecticut.

Tools for Repairing Automobile Radiators.

From F. M. Van Valkenberg and Company, 101 First Street, Dubuque, Iowa.

Can you advise who makes tools for repairing automobile radiators?

Ans.: F. L. Curfman Manufacturing Company, Maryville, Missouri.

Automatic Sand Cutter.

From The Foster Stove Company, Ironton, Ohio.

We would like to know the address of a New York manufacturer of an automatic sand cutter.

Ans.: American Foundry Equipment Company, successors to both The Sand Mixing Machine Company and the Rich Foundry Equipment Company, 52 Vanderbilt Avenue, New York City.

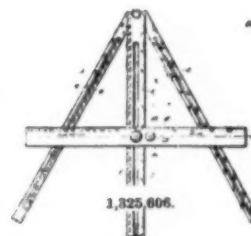
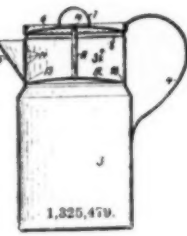
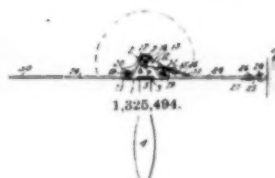
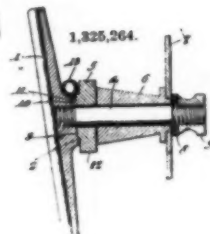
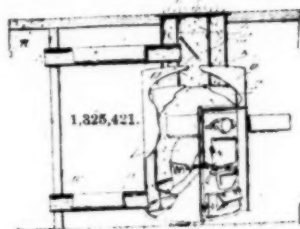
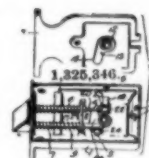
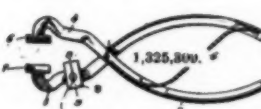
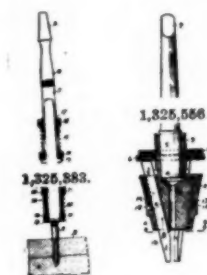
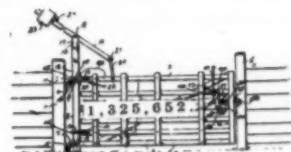
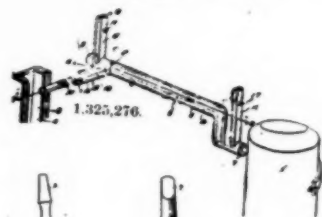
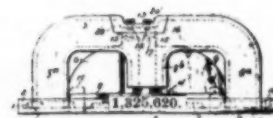
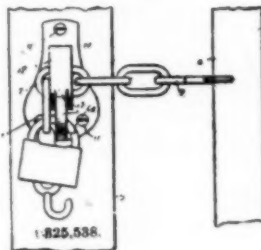
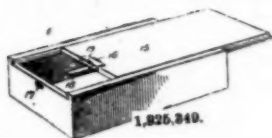
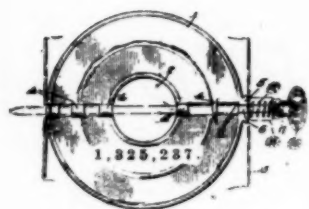
Coal Oil Lamp Burners.

From J. F. Moser, Pierceton, Indiana.

Please give me the address of manufacturers of coal oil lamp burners.

Ans.: Scovill Manufacturing Company, Waterbury, Connecticut; Plume and Atwood Manufacturing Company, Waterbury, Connecticut, and Edward Miller and Company, Meriden, Connecticut.

NEW PATENTS.



1,325,237. Damper for Stovepipes and the Like. John W. Filbey, Wrightsville, Pa., assignor to Wrightsville Hardware Company, Wrightsville, Pa., a corporation of Pennsylvania. Filed April 10, 1917.

1,325,264. Fishing Reel. Cyrus L. Pemberton, Fairmount, Indiana. Filed December 13, 1918.

1,325,276. Heat Saver for Furnaces. John H. Corcoran, Popejoy, Iowa. Filed February 11, 1919.

1,325,302. Folding Stool and Step. Ward W. Lincoln, Rock Falls, Illinois, assignor to Lincoln-Porter Manufacturing Company, Sterling, Illinois. Filed March 27, 1916.

1,325,309. Punch. Robert M. Simpson, Sparks, Kans. Filed June 28, 1917.

1,325,346. Combination Latch Lock. Ralph S. Bonilla, New York, N. Y., assignor of one-half to Pierre H. Webber, New York, N. Y. Filed July 12, 1919.

1,325,349. Box Closure. Frederick G. Burgess, Brooklyn, N. Y. Filed May 13, 1919.

1,325,380. Wrench. Herman D. Seitzman, Brooklyn, N. Y. Filed August 5, 1919.

1,325,383. Screwdriver. John Sontheimer, Lincoln, Nebraska. Filed September 10, 1918.

1,325,421. Warm Air Heater. Joseph R. Stretesky, Bonne Terre, Missouri. Filed February 25, 1918.

1,325,472. Rack. Joseph A. Ide, Palmerton, Pennsylvania. Filed December 1, 1917.

1,325,479. Coffee Pot. Harald S. Krossin, St. Paul, Minnesota. Filed March 15, 1919.

1,325,494. Razor Blade Stropping Machine. Morris Kover and John Holtzman, New York, N. Y. Filed March 8, 1915.

1,325,509. Beater. William Monroe Crane, Baltimore, Maryland, assignor of one-half to J. Frank Fox, Baltimore, Maryland. Filed August 2, 1919.

1,325,530. Bait Carrying Attachment for Fishhooks. David A. Ore, Mountain Grove, Missouri. Filed April 25, 1919.

1,325,538. Gate Fastening. Newton H. Smith, Hamilton, Illinois. Filed May 29, 1919.

1,325,556. Adjustable Reamer. Guy A. Countryman, Ashland, Ohio. Filed April 10, 1919.

1,325,586. Bottle Closure. Wayne S. Searles, Providence, Rhode Island. Filed June 5, 1919.

1,325,606. Combined Rule and Square. Louis A. Balatti, Cottonwood, Arizona. Filed September 14, 1918.

1,325,613. Combined Pan Lifter and Strainer. Nathan S. Beebe, Kansas City, Missouri. Filed June 9, 1919.

1,325,629. Oil Burner. William R. Cochran, Delphos, Ohio. Filed July 18, 1919.

1,325,636. Mop. James Guy, Kansas City, Missouri. Filed March 18, 1919.

1,325,652. Farm Gate, Latch and Hinge Mounting Therefor. John Long and Paulin A. Pederson, Rockville, Missouri. Filed April 12, 1919.

SUCCESS IS OPEN TO EVERYONE.

Any man can attain success if he is willing to pay the price—good habits, good health, much burning of midnight oil in study (not mere reading), the investment of an endless amount of genuine friendship, constant alertness to the little opportunities that lie at everyone's hand if the mind and eye have been trained to see them, and, of course, ceaseless industry, without which wishes and ambition are worthless.

PUTS STORE POLICY IN A SLOGAN.

The shrewd retailer discovers his store policy—and advertises it. Throughout his advertising—in the windows, via newspaper space, through the medium of circulars, and otherwise—a catchy store slogan is immensely helpful in fixing the store policy in the customer's memory.

WEEKLY REPORT OF TRADE AND THE MARKETS

SHORTAGE OF STEEL SUPPLIES IS STILL AN ACUTE PROBLEM.

The needs of the steel trade are far in excess of production. This is the problem which confronts the steel industry in the opening weeks of the new year. The thing of greatest urgency is to increase production and manufacturing efficiency to a point commensurate with the needs of the trade. Although the steel strike virtually is a thing of the past, one of its results has been less output per man. So the labor problem still is a sore spot.

The readjustment of the railroads to peace conditions and the impending return to private control is being watched with interest in the steel trade, as the restoration means immediate and heavy buying movement of all steel products from rails to equipment. Buying has been below normal so long that the roads are in dire need of supplies, reports indicate. Large business in rails is said to have been booked subject to the return of the roads. With this demand before the mills, the labor problems must be settled if the industry is to make any headway. The demand for commercial steel products is top heavy and in many lines consumers have been unable to get enough stock to meet pressing needs.

Reports are current in the Pittsburgh that supplies on hand are much larger than has been popularly supposed, judging from complaints by prospective buyers who have been forced to pay heavy premiums to obtain any kind of favorable booking. This does not apply to the leading interest, which is trying to maintain the old price standard, and so far has not sold a ton of steel above the March 21 schedule basis.

STEEL.

There is little likelihood of there being any selling pressure on the steel market for some time to come as the various producers are having their hands full in trying to catch up with current business and the market is entirely in the control of sellers. Such pressure as is evident in the market is coming from the other side of the fence and buyers are competing with each other in attempts to acquire stock.

For instance, there is one case of a small manufacturer of automobile parts who was in need of about 200 tons of unfinished plates, but hunted high and low without raising a single ton. After trying for a week this buyer succeeded in placing his business in a Southern mill, but only because of personal friendship. This is not the case everywhere and it is reported from the steel districts that stocks are beginning to accumulate on a small scale, but even with all of the mills producing at capacity, were that possible, it would be many months before current requirements in the domestic and export trade could be satisfied.

Estimates are being made as to how much time will be required for the trade to catch up in steel, many setting the time at six months, or to July 1, when mid-summer dullness usually overspreads the trade. Jobbers are practically sold out, stocks being far below normal. Manufacturing consumers have in the majority of cases used up the stocks they carried as a normal reserve, and in some cases have had to curtail their operations, thus falling behind in deliveries.

COPPER.

A leading Boston authority declares that there is now every reason to believe that the copper situation has changed definitely for the better. Foreign consumers are buying quite freely notwithstanding the difficult exchange situation, and domestic consumers are making substantial purchases for delivery during the second quarter of this year. Clearly the general industrial outlook is greatly improved and constructive operations are to be carried forward on a considerable scale irrespective of the prevailing costs.

There is a wide difference of opinion as to whether the surplus supply of copper was larger or smaller on December 31, 1919, than it was a year previously. In fact, it is believed that there has been a substantial reduction in the amount. The producing companies may be carrying fully as much unsold copper as they were at the beginning of last year, but it is certain that the holdings of governments, then comprising more than 550,000,000 pounds of raw and partly manufactured copper, have been cleaned up almost completely.

Prices for copper sheet in the Chicago market are quoted at 28½ cents per pound.

TIN.

During the early part of the week, the New York tin market went wild and Straits spot was quoted 3½ cents higher than the former price. This was due to all positions of standard and Straits tin advancing £17, 15 shillings per ton. The sharp advance and the wild fluctuations have frightened many prospective buyers out of the market, as everybody is expecting a reaction from higher prices. The Singapore price c. i. f. London, advanced £7 and is quoted at £350.

Pig tin in Chicago has advanced from 63 to 68 cents per pound and bar tin from 65 to 70 cents per pound.

LEAD.

The lead market continues to be very strong, but owing to the scarcity of offerings, it is not very active. There is insistent inquiry for both spot and futures, and the consumption is steadily increasing. Buyers are unable to find enough lead for sale to supply their

immediate requirements, and they are becoming anxious in regard to their future supplies. The best posted men in the trade predict further advances, however, and they do not care to sell.

American pig lead in the Chicago market went up in price from \$8 to \$9 per 100 pounds and bar lead from \$8.50 to \$9.25 per 100 pounds. Sheet lead in full coils has advanced from \$10.85 to \$11.35 per 100 pounds and in cut coils from \$11.05 to \$11.60 per 100 pounds.

SOLDER.

The quotations ruling the Chicago market for solder are as follows: Warranted, 50-50, per pound, 38.00 cents; Commercial, 45-55, per pound, 35.60 cents; Plumbers' per pound, 33.25 cents.

ZINC.

The St. Louis zinc market continues to display unprecedented strength, and sellers are showing a strong disposition to withhold their zinc from the market. It is the general opinion of the trade that the statistical position of the American market and the foreign situation are both very strong, and that notwithstanding the fact that the outlook for British smelters is becoming brighter daily, Europe will be compelled to look to America for its supplies of zinc slabs for some time to come, and that our reserve stocks soon will be exhausted.

Zinc in slabs has advanced one-quarter cent per pound in the Chicago market and is now quoted at 10¼ cents per pound.

TIN PLATE.

Most of the tin plate mills, including all of the leading interests' mills were closed several days during Christmas week, and therefore lost seven turns. Better operations were reported this week, however, the leading interest running about 84 per cent of its mills, and the independents a little better than that. Prospects for tin plate production in the first quarter of this year are excellent, as far as mill conditions are concerned, although there may be some shortage of steel. Practically all the tin plate business for the first half of 1920 is closed, except second quarter contracts with jobbers, which will be made in March. The market is quotable at the regular Pittsburgh base price, but early deliveries are difficult to arrange on new orders.

SHEETS.

About 90 per cent of the sheet mills are now in operation, the leading interest recording 92 per cent. Strike conditions have disappeared in the Pittsburgh district, but owing to the holidays there has been quite a hole made in production. This was the case last week, when the plants closed from Wednesday till the end of the week. However, it can be said that on the whole sheet operations are increasing, and there will be practically full operation in the next week or two. Tonnages are not entirely normal, but they are much better than at any time for four months, or since before the strike began. Many new mills will begin to be a factor in the second quarter of the new year, and

by the time the third quarter rolls around their influence will be felt in the market.

Still larger premiums are being paid for sheets for spot or early shipment. For mill lots premiums run up to \$20 a ton on black sheets, \$24 on blue annealed and \$36 on galvanized, these being probably the extremes for regular mill orders. The market for shipment out of stock does not on the whole reflect as high prices as it is not an open market. The jobbers as a rule are endeavoring to take care of regular customers and of course do not charge regular customers famine prices. As they have nothing like enough tonnage to go around they have little opportunity to sell at the most advantageous prices.

WIRE NAILS.

Advices from Pittsburgh are to the effect that wire nails are quotable at from \$3.25 upwards, with practically no limit, price being determined by quantity and delivery. As to quantity, this factor works both ways. A price of six cents a pound in ten-pound lots is a high price in the hardware store, yet consumers buying scores of kegs or even hundreds have paid more than \$6.00 a keg. Thus there are cases where the larger the quantity the higher the price. Mill prices range, in general, from \$3.25 to \$4.50.

OLD METALS.

Wholesale quotations in the Chicago district which may be considered nominal are as follows: Old steel axles, \$33.50 to \$35.00; old iron axles, \$35.00 to \$36.00; steel springs, \$25.00 to \$26.00; No. 1 wrought iron, \$25.50 to \$26.50; No. 1 cast, \$29.50 to \$30.50, all net tons. Prices for non-ferrous metals are as follows, per pound: Light copper, 14½ cents; light brass, 9½ cents; lead, 5½ cents; zinc, 5½ cents; zinc, 5½ cents; cast aluminum, 24½ cents.

PIG IRON.

The sold-out condition of furnaces still is in evidence and prevents the policy of new business of heavier tonnage. Coke is increasing in production, but furnaces are not receiving enough fuel to meet their demand, which is a result of a car shortage. Until more furnaces get opportunity to blow in, the shortage of pig iron will continue, and until then there will be little opportunity to look for lower prices. The tendency still is to advance, for not enough iron is free to meet the urgent demand. Any free tonnage picked up is almost sure to receive the asking price.

All the recent sales made by Eastern Pennsylvania furnaces are on the basis of \$42 for No. 2 plain, \$43.25 for No. 2X and \$45 for No. 1. Virginia furnaces have taken new business for Eastern shipment on the basis of \$40 for No. 2 plain, \$41.25 for No. 2X and \$43 for No. 1. There is a general feeling in the market that prices will continue to advance, and predictions of \$50 or \$60 per ton for No. 2 foundry are not infrequent.

It is highly probable that the belief in the likelihood of further price advances is well-grounded on a shortage of iron. Furnaces are hampered by insufficient coke supply due to lack of cars for fuel shipments.

Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS.		LEAD.		Broad.		BEATERS.	
PIG IRON.		American Pig.....\$8 00		Plumbs, West, Pat.....List		Carpent.	
Basic.....\$25 50		Bar.....9 25		" Can. Pat.....\$69 00		No. 7 Tinned Spring Wire... \$1 10	
Northern Fdy., No. 2.....26 75		Sheet.		Firemen's (handed),		No. 8 Spring Wire coppered... 1 50	
Southern Fdy., No. 2.....30 00		Full coils.....per 100 lbs. \$11 35	per doz. 21 00		No. 9 Preston.....1 75	
Lake Sup. Charcoal.....31 45		Cut coils.....per 100 lbs. 11 60		Single Bitted (without handles).		Egg.	
Malleable.....27 25		TIN.		Warren Silver Steel.. on application		No. 50 Imp. Dover.....\$ 1 10	
FIRST QUALITY BRIGHT		Pig tin.....68c		Warren Blue Finished.. "		No. 102 " " tinned... 1 35	
TIN PLATES.		Bar tin.....70c		Matchless Red Pole.....\$11 50		No. 150 " " hotel... 2 10	
IC 14x20.....112 sheets Per box		HARDWARE.		Double Bitted (without handles).		No. 10 Heavy hotel tinned.. 2 10	
IX 14x20.....15 50		ADZES.		Warren's Natl. Blue, 3 1/2 to 4 1/2		No. 13 " " " 3 30	
IXX 14x20.....17 00		Carpenters'.		lb..... Prices on application		No. 15 " " " 3 60	
IXXX 14x20.....18 40		Plumbs.....Net		The above prices on axes of 3 to 4 lbs.		No. 18 " " " 4 50	
IXXXX 14x20.....19 60		Coo'ers'.		are the base prices.		Hand.	
IC 20x28.....27 00		Barton's.....Net		BAGS, PAPER NAIL.		8 9 10 12	
IX 20x28.....31 00		White's.....Net		Pounds.....10 16 20 25		Per doz.\$11 50 13 00 14 75 18 00	
IXX 20x28.....34 00		Railroad.		Per 1,000....\$5 00 6 50 7 50 9 00		Moulders'.	
IXXX 20x28.....36 80		Plumbs.....Net		BALANCES, SPRING.		12-inch.....Per doz. 20 00	
IXXXX 20x28.....39 20		AMMUNITION.		Pelouze.....20%		BELLS.	
COKE PLATES.		Peters Cartridges.		BARS, CROW.		Call.	
Cokes, 180 lbs.....20x28 \$16 80		Semi-Smokeless.....Less 18%		Pinch or Wedge Point, per cwt....\$8 50		3-inch Nickeled Rotary Bell,	
Cokes, 200 lbs.....20x28 17 00		Smokeless.....Less 18%		Clothes.		Bronzed base.....per doz. \$5 50	
Cokes, 214 lbs.....IC 20x28 17 40		Shells, Loaded, Peters.		Small Willow.....per doz. 15 00		Cow.	
Cokes, 270 lbs.....IX 20x28 19 30		Loaded with Black Powder. Less 15%		Medium Willow....." 17 00		Kentucky.....30%	
BLUE ANNEALED SHEETS.		Loaded with Smokeless Powder.		Large Willow....." 20 00		Door.	
No. 10.....per 100 lbs. \$5 27		medium grades.....Less 15%		Galvanized Stee. 1/2 bu. 1 bu. 1 1/2 bu.		New Departure Automatic...\$ 7 50	
No. 12.....per 100 lbs. 5 32		Loaded with Smokeless Powder.		Per doz.....\$11 50 \$17 00 \$22 00		Rotary.	
No. 14.....per 100 lbs. 5 37		high grade.....Less 15%		BASKETS.		3 -in. Old Copper Bell.....6 00	
No. 16.....per 100 lbs. 5 45		Winchester.		Iwan's Post Hole and Well....30%		3 -in. Old Copper Bell, fancy. 8 00	
ONE PASS COLD ROLLED BLACK.		Smokeless Repeater Grade. Less 15%		Vaughan's, 4 to 9-in...per doz.\$14 00		3 -in. Nickeled Steel Bell....6 00	
No. 18-20.....per 100 lbs. \$5 80		Smokeless Leader Grade.....Less 15%		Ship.		3 1/2-in. Nickeled Steel Bell...6 50	
No. 22-24.....per 100 lbs. 5 85		Black Powder.....Less 15%		Ford's, with or without screw, Net list		Hand.	
No. 26.....per 100 lbs. 5 90		U. M. C.		Brad.		Hand Bell polished..List plus 5%	
No. 27.....per 100 lbs. 5 95		Nitro Club.....10&5%		No. 3 Handled.....per doz. \$0 65		White Metal....." 5%	
No. 28.....per 100 lbs. 6 00		Arrow.....10&5%		No. 1050 Handled...." 1 40		Nickel Plated....." 5%	
No. 29.....per 100 lbs. 6 10		New Club.....10&5%		Shouldered, assorted 1 to 4,		Swiss....." 10%	
GALVANIZED.		Gun Wads—per 1000.		Patent asst'd. 1 to 4.. " 85		Miscellaneous.	
No. 16.....per 100 lbs. \$6 75		Winchester 7-8 gauge....10&7 1/2%		Harness.		Church and School, steel alloys...30%	
No. 18-20.....per 100 lbs. 6 90		" 9-10 gauge....10&7 1/2%		Common....." 1 05		Farm, lbs... 40 50 75 100	
No. 22-24.....per 100 lbs. 7 05		" 11-28 gauge....10&7 1/2%		Patent....." 1 00		Each.....\$3 00 3 75 5 50 7 25	
No. 26.....per 100 lbs. 7 20		Powder.		Peg.		BEVELS, TEE	
No. 27.....per 100 lbs. 7 35		DuPont's Sporting, kegs....\$11 25		Shouldered....." 1 60		Stanley's rosewood handle, new	
No. 28.....per 100 lbs. 7 50		" " 1/2 kegs....3 10		Patented....." 75		list.....Nets	
No. 30.....per 100 lbs. 8 00		DuPont's Canisters, 1-lb....56		Scratch.		Stanley's iron handle.....Nets	
WELLSVILLE POLISHED STEEL.		" Smokeless, drums....43 50		No. 1S, socket hand'ld.per doz. 2 50		BINDING CLOTH.	
No. 18-20.....per 100 lbs. \$7 10		" " kegs....22 00		No. 344 Goodell-Pratt,		Zincd.....55%	
No. 22-24.....per 100 lbs. 7 20		" " 1/2-kegs....5 75		List, less.....35-40%		Brass.....40%	
No. 26.....per 100 lbs. 7 30		" " canisters....1 00		No. 7 Stanley.....2 25		Brass, plated.....60%	
No. 27.....per 100 lbs. 7 40		L. & R. Orange, Extra Sporting		AXES.		BITS.	
No. 28.....per 100 lbs. 7 50		kegs.....11 25		First Quality, Single Bitted,		Auger.	
KEYSTONE HAMMERED		L. & R. Orange, Extra Sporting		3 to 4 lb.....per doz. 15 50		Jennings Pattern.....25%	
POLISHED STEEL.		1 lb. canisters.....56		First Quality, Double Bitted,		Ford Car.....List plus 5%	
28-26.....per 100 lbs. \$9 85		L. & R. Orange, Extra Sporting	per doz. 20 50		Ford's Ship....." 35%	
25-22.....per 100 lbs. 9 35		1/2 lb. canisters.....32		Patent....." 85		Irwin.....20%	
BAR SOLDER.		L. & R. Orange, Extra Sporting		Harness.		Russell Jennings.....33 1/2%	
Warranted, 50-50...per 100 lb. 38 00		1/2 lb. canisters.....22		Common....." 1 05		Clark's Expansive.....33 1/2%	
Commercial, 45-55....." 35 60		Hercules "E.C." and "Infallible"		Patent....." 1 00		Steer's "Small list, \$22 00...5%	
Plumbers'....." 33 25		50 can drums.....43 50		Peg.		" " Large "\$26 00...5%	
ZINC.		Hercules "E.C." kegs.....22 50		Shouldered....." 1 60		Irwin Car.....35%	
In slabs.....10 1/2c		Hercules "E.C." 1/2-kegs....11 25		Patented....." 75		Ford's Ship Auger pattern	
SHEET ZINC.		Hercules "Infallible," 25 can		Scratch.		Car.....List plus 5%	
Cask lots.....13 c		drums.....22 00		No. 1S, socket hand'ld.per doz. 2 50		Center.....10%	
Less than cask lots.....13 1/2-13 3/4c		Hercules "Infallible," 10 can		List, less.....35-40%		Countersink.	
COPPER.		drums.....9 00		No. 7 Stanley.....2 25		No. 18 Wheeler's...per doz. \$2 25	
Copper Sheet, base.....28 1/2c		Hercules "E.C." 1/2-kegs....5 75		AXES.		No. 20....." 3 00	
		Hercules "E.C." and "Infallible"		First Quality, Single Bitted,		American Snailhead.. " 1 75	
		canisters.....1 00		3 to 4 lb.....per doz. 15 50		Rose " " 2 00	
		Hercules W. A. .30 Cal. Rifle,		First Quality, Double Bitted,		" Flat....." 1 40	
		canisters.....1 25	per doz. 20 50		" " " " 1 60	
		Hercules Lightning Rifle,				Mahew's Flat....." 1 90	
		canisters.....1 25				Dowel.	
		Hercules Sharpshooter Rifle,				Russell Jennings.....20%	
		canisters.....1 25				Gimlet.	
		Hercules Unique Rifle, canisters				Standard Double Cut.	
		1 50				Doz. \$1 10—\$1 60	
		Hercules Bullseye Revolver,				Countersink.....Doz. 1 80	
		canisters.....1 00				Reamer.	
		ANVILS.				Standard Square.....Doz. 2 50	
		Solid Wrought.....23 & 23 1/2 per lb.				American Octagon... " 2 50	
		ASBESTOS.				Screw Driver.	
		Board and Paper, up to 1/16" 17c per lb.				No. 1 Common.....40	
		Thicker.....18c per lb.				No. 26 Stanley.....75	

CRAYONS—See Chalk.			ELBOWS—Conductor Pipe.			Wood Pails.			HANGERS.		
CUTTERS			Galvanized Steel, Tin and Terne, Round Corrugated.			Frazer's, 15lb. \$1.00; 25 lb. \$1.50 each Hub Lightning, 15 lb. 90c; 25 lb. \$1.21 each.			Barn Door.		
Glass.			Size.	Doz.		Tin Cons.			U. S. Rolled Bearing.....12½%		
Woodward.....	40%		2-inch.....	40%		Frazer's			Matchless.....12½%		
Meat.			3-inch.....	65%		1½ lb. per doz.....\$1 75			Warehouse Tandem, No. 44.....33½%		
Enterprise—Nos. 5 10 12			4-inch.....	65%		3 lb. per doz.....3 25			Conductor P.		
Each \$2 50 \$4 25 \$3 75			5-inch.....	65%					Iwan's Perfection.....45%		
" Nos. 22 32			6-inch.....	65%					Ease Trough.		
" 6 50 8 50			EMERY, TURKISH.			GRINDSTONES.			All sizes, 5" or smaller,		
Pipe.			Size.....	1-lb. 5-lb. 10-lb.		Family.		per gross. \$3 80 Net		
Saunders', No. 1 2 3			Per pound.....	18c 14c 13c		Inches.. 7 8 10 12			All sizes, larger than 5",		
Each.....\$1 85 2 75 6 75			EYES.			Per doz.. 20 50 21 75 26 25 30 50		per gross. 5 00 "		
Slow and Kraut.	Per doz.		Bright Wire Screw—See Ooods, B. W.			Loose.			Garage Door.		
4-knife Kraut.....	\$20 00-55 00		Drifting Pick.....			Per ton.....			Right Angle.....		
3-knife Kraut, 8x27 in..	13 00-18 00		Hooks and Eyes—			Mounted.			Sliding Folding.....		
1-knife Slaw.....	2 50		Brass, 1½" No. 60..			Ball Bearing.....			Receding.....		
2-knife Slaw.....	3 00		Iron " " 50..			Each.....			Parlor Door.		
Washer.....	11 00					1 2 3			Acme.....		
DAMPERS, STOVE PIPE.			FASTENERS, STORM SASH.			(See Ammunition).			Ives' Improved.....		
Ideal			Shroeder's.....			GUNS.			Lane's Standard.....		
3".....	\$1 00		Sensible.....			Iver Johnson Champion Single			Lane's New Model..		
4".....	1 05		Delta			Barrel Shot Guns.....			Le Roy Noiseless.....		
5".....	1 15		Swiss.....			Double Barrel, Hammerless..			Richards.....		
6".....	1 25		Utility.....			Brad.			Advance.....		
7".....	2 20		Nicholson's—			Common.....			HASPS.		
8".....	3 75		American.....			Patent, plain top.....			Hinge, Wrought.....		
10".....	6 00		Arcade.....			Patent, leather top... "			With Staples—See Staples.		
DIES AND STOCKS.			Black Diamond.....			Sewing.			HATCHETS.		
Discount.....	New List		Eagle.....			Common.....			Crescent.....		
DIGGERS.			Great Western.....			Patent.....			Cast Claw.....		
Post Hole.			Kearney & Foot.....			55			Cast Shingling..		
Eureka.....	per doz. \$14 50		McClellan.....						Germantown.....		
Iwan's Split Handle (Eureka)			Nicholson brand.....			HAFTS, AWL.			HAY KNIVES.		
4-ft. Handle.....	15 00		J. Barton Smith.....			Brad.			See Knives.		
7-ft.....	20 00		X-F Swiss Pattern.....			Common.....			HAY RACK BRACKETS		
Iwan's Perfection (Atlas) "	16 50		Simonds'.....			Patent.....			Wenzelman's No. 1 per doz. sets, \$18 00		
Iwan's Hercules pattern "	18 00		Diaston's.....			Sewing.			Wenzelman's No. 2 " " 19 20		
See also Augers—Post Hole.			Heller's.....			Common.....			HINGES.		
Dividers, Wing.....	25%					Patent.....			Blind.		
DOOR CHECKS—See Checks.			FORKS.			HAMMERS, HANDLED.			Clark's Gravity		
DOORS, SCREEN.			Barley.			Blacksmiths, Hand, No. 0, 26 oz.			No. 1.....		
1½-in. 4-panel, painted.....	Net Prices		Steel, new list.....			Engineers', No. 1, 26 oz.			No. 3.....		
1½-in. 4-panel, painted.....	"		Hay.			Farriers', No. 6, 7 oz.			Gate.		
1½-in. 3-panel, natural pine,	"		2-tine.....			Machinists', No. 1, 7 oz.			Clark's.....		
fancy.....	"		3- ".....			Nail.			Hgs & Lch, doz. \$5 50 7 00 9 75		
DOOR HANGERS—See Hangers.			4- ".....			Vanadium, No. 41½, 16 oz.,			Hinges only " 4 75 5 50 8 00		
DRILLS.			Digging.....			per doz.....			Latches only. 1 90 1 90		
Blacksmiths' Twist. (New List)....	40%		Scoop.....			11 90			Screen Door.		
Breast.			Header.			Tinner's Riveting, No. 1, 8 oz.,			Cast Iron.....		
Millers Falls No. 12....	Each, \$46 00		3-tine.....			per doz.....			Steel.....		
" 112....	26 00		4- ".....			Shoe, Steel, No. 1, 13 oz. per doz.			7 00		
Hand.			Manure.			10 00			Spring.		
Goodell's Automatic.			4-tine.....			Tack.			Chicago.....		
Nos. 01 03			FREEZERS—ICE CREAM.			Magnetic.			Columbia Dbl. Acting... 40&10&5%		
Per doz. 12 00 14 40			White Mountain 1-quart.....			Per doz.....			Gem.....		
Goodell's Single Gear, per doz. 15 75			" " 2 ".....			\$5 63			Ideal Detachable.....		
Goodell-Pratt No. 4½ per doz.			" " 4 ".....			HAMMERS, HEAVY.			per gro. \$11 00		
list, less.....	30%		" " 6 ".....			Heavy Hammers and Sledges.			Matchless.....		
Goodell-Pratt No. 379 per doz.			Arctic.....			Under 5 lbs.....			New Idea.....		
list, less.....	30%		" " 2 ".....			5 lbs. and over.....			Oxford.....		
Reciprocating.			" " 4 ".....			50&10%			Wrought Iron.		
Goodell's.....	per doz 26 00		" " 6 ".....			Masons'.			New Lists.....		
DRIVERS, SCREW.			GAUGES.			Single and Double Face.....			Light Strap Hinges.....		
Standard.....	Nets		Cream Pail.			50%			Heavy Strap Hinges.....		
Lock Ferrule.....	"		Fairmount.....			60%			Light T Hinges.....		
Champion.....	"		Marking, Mortise, etc.....			6 00			Heavy T Hinges.....		
Champion Pattern.....	"		Wire.			1 35			List plus 45%		
Clark's Interchangeable.....	"		Disston's.....			30%			Extra Heavy T Hinges.....		
Edison.....	"					HANDLES.			Screw Hook and Strap.		
Reed's Lightning.....	"		GIMLETS.			Auger.			6 to 12 in.....		
Goodell's Spiral.....	"		Discount.....			Common Assorted.....			per 100 lbs. \$7 75		
Yankee Ratchet.....	"		35@40%			Pratt's Adjustable, Nos. 1 & 2,			14 to 20 in.....		
" Spiral.....	"		GLUE.			per doz.....			22 to 36 in.....		
EAVES, TROUGH.			Bulk.			6 00			"		
65-10% off Standard List.			B Amber.....			Ives' Adjustable.....			7 25		
ELBOWS—Stove Pipe.			A White.....			Axe.....			Screw Hook and Eye.		
1-piece Corrugated, Uniform.			H. S. Amber.....			Chisel.			½ in.....		
5-inch.....	Doz. \$1 30		Liquid.			Hickory, Tanged, Firmer, Assorted,			per doz. pair \$2 60		
6-inch.....	1 45		Army & Navy.....			55c; Large, 85c per doz.			¾ in.....		
7-inch.....	1 85		Le Page's—			Hickory, Socket Firmer, Assorted,			1 in.....		
Uniform, Collar Adjustable			List "A".....			70c; Large size, 80c per doz.			"		
5-inch.....	Doz. \$1 30		List "B".....			Coal Pick.....			5 00		
6-inch.....	1 45		List "C".....			Drifting Pick.....			HOES.		
7-inch.....	1 80					File, assorted, 30c; Large, 35c per doz			Garden.....		
ELBOWS—Stove Pipe.			GREASE, AXLE.			Hammer.			Net		
1-piece Corrugated, Uniform.			Wood Boxes.			Adze Eye.....			Grub.		
5-inch.....	Doz. \$1 30		Frazer's.....			Blacksmiths'.....			Extra.....		
6-inch.....	1 45		Hub Lightning.....			" 45c@1 00			Hazel.....		
7-inch.....	1 80					" 50c@1 00			per doz. New prices		
ELBOWS—Stove Pipe.						Hay and Manure Fork.....			Ladies' and Boys'.....		
1-piece Corrugated, Uniform.						25%			New prices		
5-inch.....	Doz. \$1 30								Mortar.....		
6-inch.....	1 45								Planter's Eye.....		
7-inch.....	1 80								Weed.....		
ELBOWS—Stove Pipe.									New prices		
1-piece Corrugated, Uniform.											
5-inch.....	Doz. \$1 30										
6-inch.....	1 45										
7-inch.....	1 80										
ELBOWS—Stove Pipe.											
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7-inch.....	1 80										
ELBOWS—Stove Pipe.											
1-piece Corrugated, Uniform.											
5-inch.....	Doz. \$1 30										
6-inch.....	1 45										
7-inch.....	1 80										
ELBOWS—Stove Pipe.											
1-piece Corrugated, Uniform.											
5-inch.....	Doz. \$1 30										
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5-inch.....	Doz. \$1 30										
6-inch.....	1 45										
7-inch.....	1 80										
ELBOWS—Stove Pipe.											
1-piece Corrugated, Uniform.											
5-inch.....	Doz. \$1 30										
6-inch.....	1 45										

Box. Inch..... 5 7 10 12 Per doz...\$2 50 2 75 3 25 3 85 Bush. Common Axe Handle, per doz.\$22 00 Chain. Inch. 1/4 1/2 3/4 1 1 1/2 Pr 100 \$7 60-8 10 9 75 11 30 12 60 Clothes Line. Japanned.....per doz.48c@1 40 Galvanized..... " 75c@2 50 Cock and Hat. Common Wire....per gro. 1 25-1 65 Conductor. Iwan's Tinned Sickle..... List. Corn. Common, riveted, painted red.....per doz. Nets Little Giant..... " " Gate. See Goods, Bright Wire. Grass. Common Nos. 1 3 5 7 Per doz...\$4 50 3 50 3 75 3 25 Hammock. With plate.....per doz. 1 10 With screw..... " 1 00 Lambrequin, or Drapery, per gro....30c Picture.....50%@50&10% Potato and Manure.....Nets Screw. Brass.....70% (See Goods, Bright Wire.) Seat Spring.....per lb. 54c HOSE, GARDEN. Per ft. Guaranteed 3 ply 1/2 inch.....16 c " 4 ply 1/2 inch.....18 1/2 c " 5 ply 1/2 inch.....13 1/2 c COTTON COV. RUBBER HOSE. High Grade Apache 1" guar. press. 400 lbs.....40c HUSKERS. Nos..... B E Per doz.....New Nets No. 59.....per doz. New Nets IRON, PIG. See Metals.—First column. IRONS. Curling. C.....per doz. \$4 40 B..... " 50 A..... " 58 Princess..... " 1 25 Thelma..... " 1 25 Pinkie..... " 1 00 Planer. Wood Bench.....Add 10% to list Sad. Charcoal.....per doz. \$11 00 Common, polished, per 100 lbs. 7 75 No. 70 Asbestos.....\$1 50 net No. 100..... " 1 75 net Common, nickel plated..... 8 25 Mrs. Pott's..... No. 50 J, Enterprise, per set, Nets No. 55 J..... " " No. 50 T..... " " No. 55 T..... " " Tailors' Sad.....per lb. " Tailors' Goose..... " " Ideal. 6 lb. Household.....\$3 50 9 lb. Dressmakers..... 4 25 14 lb. Tailors' Goose..... 5 50 Tuyere. Single Duck Nest.....per doz. \$5 25 Double Duck Nest..... " 6 25 Sutton.....each 2 60 JACKS. Locomotive.....30% Wagon. Richard's No. 1.....per doz. \$15 50 Miller..... " 20 00 Oliver, Nos..... 0 00 Each.....\$0 60 \$0 80	Standard. Nos..... 1 2 Each.....\$0 60 1 00 R-W Big Lift.....40% Tiger.....40% KETTLES. Brass.....15% Cauldron.....40&5% Copper.....per lb. 27 Maslin.....40&10% Sugar.....50% KNIVES. Best Topping. Clyde, 9-in. Scimitar Blade, dz. \$3 85 California..... " 3 40 Butcher.....Per doz. Beechwood Handles, 6" blade..\$4 00 " 7" " 4 65 " 8" " 5 65 Cooper's Hoop.....15% Corn. Clipper.....per doz. \$1 75 Disston's..... " 2 75 Earle's..... " 3 00 Woodford..... " 2 25 Drawing. Standard.....(New List) 15% Adjustable..... " 15% Barton's Carpenters.....15% Hay. Iwan's Solid Socket.....doz.\$13 00 Heath's..... " 13 00 Iwan's, Sickle Edge..... " 15 00 Iwan's, Imp'd Serrated..... " 15 50 Hedge. Challenge.....per doz. \$6 00 Disston's..... " 3 75 Mincing. Common, Single..... " 60 Common, Double..... " 90 Streeter, 4-blade..... " 1 30 Streeter, 6-blade..... " 2 00 Pully. Common.....per doz. \$0 75@1 50 Lander's..... " 1 75@2 50 Scraping. Beech Handle.....90@1 10 Lander's.....5 50@6 50 Doors. Mineral.....per doz. \$2 10 Porcelain..... " 2 20 Jet..... " 2 20 LADDERS. Common Long. Per ft.....17c@23c Extension. Per ft.....22 to 28 Step. Common, per ft.....23c Common, with Shelf, add 10c. IXL.....34c Challenge, 6 to 9 ft.....35c 10 to 16 ft.....60c LANTERNS. Bull's Eye Police. 3-in. Flash Light.....per doz. \$13 00 LEADERS, CATTLE. Nos..... 51 52 Per doz.....\$1 35 1 45 LEATHER, LACE. Rawhide 1/2".....100 ft. \$2 60 " 1"..... " 4 40 LEATHERS, PUMP. Valve and Plunger.....10% LIPTERS. Stone Cover. Coppered.....per gro. \$3 25@5 50 Alaska..... " 8 00 Alaska..... " 10 00 Transom. Payson's.....55% LINES. Chalk. Twisted in 20-ft. hanks. Nos. 4 6 7 8 9 Gro.....Prices on Application Twisted in 50-ft. balls. Nos.....1 2 3 4 Per doz.....Prices on Application Braided in 20-ft. hanks. Nos.....0 1 2 3 Per doz.....Prices on Application Mason's..... Clothes. 60 ft. Jute.....per doz. \$0 95 60-ft. Sisal..... " 40 50-ft. Cotton..... " 15 50-ft. Braided Cotton..... " 25	BRICKS, STOVE. Bricks.....per crate, 42c LOCKS. Barn Door. No. 60 Stearns.....per doz. \$10 00 No. 80 " " 17 50 MACHINES. Riveting. Stearns No. 1.....per doz. \$12 00 Tenoning. No. 50 Peace's Spoke.....each \$11 50 MAIL BOXES. See Boxes. MALLETS. Carpenters'. Fibre Head, No. 2, per doz. \$16 50 " No. 3 " 19 50 " No. 4 " 28 50 Round Hickory..... " \$3 00-5 00 " Lignumvitae..... " 6 25-10 50 Square Hickory..... " 3 50-5 50 " Lignumvitae..... " 8 00-12 00 Tinners'. Hickory..... " 2 25 MATS. Door. National Rigid.....50&10&5% Acme Steel Flexible.....50% Slope. No. 2.....per gro. Nets No. 1..... " " No. 1 Asbestos Toasters, or wire-covered Stove Mats, with handle.....per doz. 1 10 No. 2 Asbestos Toasters, with ring.....per doz. 60 MATTOCKS. Plumbs.....25% MAULS. Iron, lbs. 10 13 16 18 Per doz.....Prices on Application Wood Pace, lbs. 10 12 14 Per doz.....Prices on Application Wood Choppers'. Lake Super'r & Oregon Pat. 40&5% MEASURES. Galvanized, doz.....Nets Japanned, doz.....Nets MILLS, COFFEE. Enterprise.....16 1/2% Parker.....30&5% Arcade.....40-10% MITRE BOXES. See Boxes. MOPS. Cotton. Star (Cut Ends). Pounds 12' 15' 18' 24'-3 oz. Per doz. \$4 50 5 65 6 75 9 00 MOWERS, LAWN. Gladiator—B. B. Inches.....16 18 20 Each.....\$6 50 7 25 8 00 King Universal—B. B. Each.....\$5 25 5 75 6 00 Inches.....14 16 18 Big Giant.....\$3 50 3 90 4 25 NAILS. Cut Steel.....Prices on Application Cut Iron..... " " Wire. Small Lots...Prices on Application Cement Coated. Small Lots.....Prices on Application Horseshoes. Ausable.....55&5% Capwell.....15% Perfect.....55&5% Putnam.....20&5% Star.....30&5% Picture. Brass Heads.....25% Brads.....50&5% Furniture.....List plus 15%	NAIL PULLERS. See Pullers. NAIL SETS. See Sets. NETTING, POULTRY. Galvanized before weaving.....50% Galvanized after weaving.....45% NIPPERS. End Cutting. Stubbs' Pattern, Inches. 5 6 Per dozen.....\$4 65 6 75 End and Diagonal Cutting. Swedish Side. Inches. 5 6 Per dozen.....\$4 50 5 75 Hoof. Heller's.....40&10% V. & B.....55&5% NOZZLES. Hose. Magic.....per doz. \$9 50 Diamond..... " 5 75 NUTS, HOT PRESSED. Square Tapped. \$1.85 off per 100 lbs. Hexagon Tapped. \$1.85 off per 100 lbs. OILERS Chase Pattern. Brass and Copper.....10% Zinc.....33 1/4% Engineers'. Tin.....per doz. \$7 00@ 9 00 Machine. Common.....per doz. \$0 85 OPENERS. Box. See Box Chisels Can. Delmonico.....per doz. \$1 30 Never Slip..... " 65 Crate. V. & B..... " 7 25-11 00 OUTFITS, COBBLING Combination.....per doz.\$16 00 Economy..... " 8 50 Family..... " 14 50 PAILS. Cream. 14-qt., without gauge, per doz. \$9 50 18-qt., " " 11 00 20-qt., " " 11 75 Sap. 10-qt., IC Tin.....per doz. \$4 00 12 " " " 5 50 Stock. Galv'd. qts. 14 16 18 20 Per doz...\$9 75 10 75 12 75 14 50 Water. Galvanized, qts. 10 12 14 Per doz.....\$5 75 6 50 7 25 Wood. Cable, 2-Hoop.....per doz. Nets Cable, 3-Hoop..... " Nets Cedar, 3-Hoop, brass.. " Nets PANS. Dripping.....Net Fry. Common.....Nets Acme..... " " Roasting. Paxton, Nos. 1 2 3 4 Per doz.....Nets Neverburn..... " " Savory No. 200.....per doz. \$8 40 PAPER. Building. Plain.....per 100 lbs. \$8 1/2 Tarred..... " 8 1/2 Tarred Felt..... " 8 1/2 Red Rosin, per ton.....\$75 00 Sand and Emery. No. 1, per ream, best grade... \$5 40 No. 1, per ream, cheaper grade. 4 85 Wrapping. Express.....100 lbs. Nets
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PARERS		TINNERS.		PUNCHES.		SAWS.	
Apple.		Hollow.....Net list		Conductors.		Band.	
Goodell's.....per doz. \$10 80		Solid.....each, 10c		No. 22.....per doz. \$3 00		E. C. Atkins & Co. Prices on applic'n	
Turntable....." 11 10				Machine.....per lb. 25		Disston's.....Prices on applic'n	
White Mountain....." 8 40				Saddlers.		Back.	
Reading, No. 78....." 11 40				Common.....per doz. 1 50 to 5 00		Disston's.....Prices on applic'n	
Potato.		PLUMBS AND LEVELS.		Revolving Spring.		Jackson's.....New nets	
Goodsell's Saratoga, 10 1/2 in., dz. 6 50		Common.....Nets		Stearns, No. 10.....per doz. \$ 6 25		Butchers.	
Goodsell's Saratoga, 5 in., dz. 5 50		Cook's.....40%		" No. 40....." 12 00		E. C. Atkins & Co. Prices on applic'n	
		Davis' Iron.....25%		" No. 60....." 16 00		Disston's.....Prices on applic'n	
		Davis' Inclinator.....15%				Circular.	
		POINTERS, SPOKE.		PUTTY.		E. C. Atkins & Co. Prices on applic'n	
		Stearns' No. 1.....per doz. \$ 8 00		Strictly pure.....per 100 lbs. \$4 25		Disston's.....Prices on applic'n	
		" No. 2....." 10 00		RAIL.		Hiles'.....New nets	
		POKERS, STOVE.		Barn Door.		Compass.	
		Wr't Steel, str't or bent per doz. \$0 75		Matchless, 1-in.....5c		E. C. Atkins & Co. Prices on applic'n	
		Nickel Plated, coil han'l's " 1 10		Matchless, 1 1/2-in.....7c		Disston's.....Prices on applic'n	
		POLISH.		Storm King.....5c		Coping.	
		Metal.		Sliding Door.		E. C. Atkins & Co. Prices on applic'n	
		Wizard, 6 oz.....per gross \$18 00		Bronzed wrought iron.....per ft. 8 1/2c		Disston's.....Prices on applic'n	
		" 1/2 pt....." 20 40		RAKES.		Flooring.	
		" 1 pt....." 36 00		Garden.		E. C. Atkins & Co. Prices on applic'n	
		" 1 qt....." doz. 6 00		Steel, Bow, 12-inch Teeth.....\$8 50		Disston's.....Prices on applic'n	
		" 1 gal....." 10 80		Steel, Bow, 14-inch.....9 25		Hack.	
		" 1 gal....." 18 60		Malleable Iron, 12-in.....4 75		Disston's.....Prices on applic'n	
		Stove.		Malleable Iron, 14-in.....5 00		Hand and Rip.	
		Black Eagle Paste 5 oz.....\$13 80		Hay.		E. C. Atkins & Co. Prices on applic'n	
		" " 1 lb.....17 40		Wood, 10 Teeth.....\$4 00		Disston's No. 7.....Prices on applic'n	
		" " 1 lb.....31 20		Lawn.		Disston's Nos. 8, D8, 12, 76, 112,	
		" " 5 lbs. per case.....5 25		20 Teeth.....per doz. \$5 50		D100, and 120.....Prices on applic'n	
		Black Eagle Liquid, 6 oz. per gross.....15 60		RASPS—See Files.		Keystone.....New nets	
		Black Kid Paste, 5 lbs. per case 6 00		Gillette.....per doz. \$45 00		Keyhole.	
		Black Jack Liquid 1/2 pt. per gross.....15 60		Auto Strop.....45 00		E. C. Atkins & Co. Prices on applic'n	
		Black Jack Paste #10 per gross 13 20		Gem.....8 40		Disston's.....Prices on applic'n	
		FIRE POTS.		Gem (3 doz. lots).....8 40		Miller Box.	
		Clayton & Lambert's, each \$4 00@6 00		Ever Ready.....8 00		E. C. Atkins & Co. Prices on applic'n	
		Gate City.....each, 6 25		RAZOR STROPS.		Disston's.....Prices on applic'n	
		Gem.....each, \$6 75@8 50		Star (Honing).....50%		Patternmakers.	
		POWDER.		REGISTERS.		E. C. Atkins & Co. Prices on applic'n	
		See Ammunition.		Japanned, Bronzed & Plated.....30%		Disston's.....Prices on applic'n	
		PRESSES, FRUIT AND JELLY.		Solid Brass or Bronze Metal prices on application.....30%		Wood.	
		Enterprise Manufacturing Co....25%		Baseboard.....30%		E. C. Atkins & Co. Prices on applic'n	
		PRIMERS.		REGISTER FACES.		Disston's.....Prices on applic'n	
		See Ammunition.		Japanned, Bronzed and Plated.		SAW BUCKS—See Bucks.	
		PRUNERS.		4x6 to 14x14.....30%		SAW SETS—See Sets	
		Disston's Pole.....per doz. \$18 00		14x14 to 38x42.....50%		SAW TOOLS—See Tools.	
		Water's Improved....." 60%		REVOLVERS.		SAW FRAMES.	
		PULLERS.		Iver Johnson Safety Automatic Hammer.....New Nets		Common, plain.....per doz. \$1 50	
		Cork.		Hammerless....."		Common painted....." 2 10	
		Daisy.....each, \$3 10		I. J. Model 1900....."		SCALES.	
		Phoenix....." 1 40		RINGS AND RINGERS.		Counter.	
		Quick and Easy....." 2 70		Bull.		Pelouze.....40&10%	
		Nail.		Copper.....2 1/2-in. 3-in.		SCISSORS.	
		Giant.....per doz. 14 50		Per doz.....\$2 75 \$3 25		Star.....60%	
		Never-Slip....." 17 00		Rea's Improved Self-Piercing copper, doz. 3 40		SCOOPS.	
		PULLEYS.		Steel, per doz.....1 50 1 80		Grain.	
		Awning—Jap'd.....10%		Hog.		1 bu. "Hercules".....per doz. 3 70	
		Clothes Line.....10%		Blair's Rings.....per doz. \$ 75		1 bu. "Hercules"....." 5 00	
		Hay Fork.		Blair's Ringers....." 1 00		SCRAPERS.	
		Iron Wheel, 5-in.....per doz. 2 50		Brown's Rings....." 72		Box.	
		Wood Wheel, 6-in....." 2 65		Brown's Ringers....." 1 00		Triangular, No. 6.....per doz. \$6 25	
		Wood Wheel, 6-in., pass knot,.....per doz. 3 00		Hill's Rings....." 1 00		Road.	
		Sash.		Hill's Ring, boxes....." 72		Cubic ft.....7 5 3	
		Common.....Net		Major Rings....." 60		With runners, ea. \$7 00 6 50 6 20	
		Common-Sense, 2-in.....Net		Perfect Ringers....." 1 50		SCREEN DOOR HINGES.	
		Empire Pattern, 2-in.....Net		Wolverine Rings....." 1 65		Cast iron.....gross, \$13 00	
		Ideal.....Net		Wolverine Ringers....." 1 10		Steel....." 9 50	
		Steel.....Net		Fruit Jar.		SCREWS.	
		PUMPS.		White.....per lb.....30c		Bench.	
		Pitcher Spout.		Key.		Iron, ins. 1 1/2 1 1/4 1 1/2 1 3/4	
		Nos. 1 2 3 4		Split, round.....per doz. \$0 17		\$9 75 11 50 13 75 21 50	
		Each.....Nets		Split, square....." 32		Wood, white maple.....per doz. 6 00	
		Spray.		Ball, round....." 40		Hand—Wood.....35%	
		Midget Junior.....per doz. 3 75		RIVETS.		Hand Rail.....22 1/2%	
		New Misty....." 6 00		Copper Belt.....Add 15% to list		Jack.....33 1/2%	
		Crescent....." 6 50		Coppered Iron.....30%		Lag or Coach—all sizes, gimlet pointed.....43-5%	
		Hickory Board.....10%		Tinners'.....30%		Saw—Centennial.	
		Log.....10%		Hame.....per lb. \$0 17		Nos.....1 2 3 4	
		RULES.		Slotted Clinch.....per doz. 60c@1 10		Per doz.....47c 55c 75c 90c	
		Clipper, Grass.....per doz. \$13 50		Tubular.		Wood.	
		Honest Dutchman....." 13 70		Nos. 1 and 2 assorted sizes, 50 in box.....doz. 75c		R. H. Bright.....70-10-10%	
				Nos. 1 and 2 assorted sizes, 10 in box.....doz. 1 40		R. H. Blued.....65-10-10%	
				See Sets.		R. H. Jap'd.....62 1/2-10%	
				ROPE.		R. H. Brass.....42 1/2-10-5%	
				Cotton.		R. H. Brass.....40-10-5%	
				1, 5-16 in. Com. on reels, per lb.....85c		R. H. Nickel Plated.....57 1/2-10%	
				1, 5-16 in. Com. in coils....." 85c		SCYTHES.	
				Sisal.		Clipper, Grass.....per doz. \$13 50	
				1st Quality.....20c		Honest Dutchman....." 13 70	
				No. 2.....16c			
				Pure Manila.			
				1st quality, base.....per lb. 25 1/2c			
				Hardware Grade.....per lb. 24 1/2c			

SETS.		SQUARES.		TAPES, MEASURING.		WARE.	
Nail.		Steel and Iron.		Asses' Skin.		Glue Pots.	
Square head..... per doz. \$1 25		Nets new list		Lufkin's Steel..... List Net		Tinned..... Add 15% to list	
Cup point, knurled.. " 1 15		(Add, for bluing, \$3.00 per doz., net.)		Lufkin's Metallic..... List to list plus 20%		Enameled..... 30%	
Rivet.		Mitre..... Nets		Lufkin's Pocket..... 10%		WASH BOARDS—See Boards.	
Farmers'..... per doz. \$2 10		Try.....		THERMOMETERS.		WASHERS.	
Tinners'..... 25%		Try and Bessel.....		Tin Case..... per doz. 80c@ \$ 1 25		Standard O. G. cast iron... per lb. 3½c	
Saw.		Try and Miter.....		Wood Back... " \$2 00@ 12 00		Wrought steel in 5-lb. boxes, per lb.:	
Aiken's Pattern..... per doz. \$6 50		Fox's..... per doz. \$6 00		Glass..... " 12 00		In. 3/16 1/2 5/16 3/4 1 1 1 1 1 1	
Disston's Monarch... " 7 20		Winterbottom's..... 10%		Bale.		18c 16c 15c 13c 12c 11½c 11c 11c 11c	
Disston's X-Cut..... 13 50		SQUEEZERS, LEMON.		Single Loop, carload lots..... 75&7%		WEDGES.	
Leach's..... " 80		Common Wood..... per doz. \$0 70		" less than car lots 70&15%		Ax..... per doz. Nets	
Nash's Hand..... " 3 15		Porcelain Lined, Wood..... 1 25		Cow—See "Chains."		Galling..... per lb. "	
Nash's X-Cut..... " 4 20		Boss, malleable iron..... " 1 20		TOOLS, SAW.		Saw..... " 8½	
Stillman's Lever..... " 1 30		Iron frame, porc'n bowl..... 1 90		Disston's Universal..... 40%		WEANERS.	
Stillman's X-Cut..... " 2 50		Iron Frame, glass bowl..... 2 35		TRAPS.		Calif.	
Whiting Pattern, No. 21 " 5 75		Little Giant, tin'd iron..... 4 00		Game with Chains.		Fuller's, per doz. \$2 00 to \$2 50	
Eccentric Anvil, Hand, No. 395, N. P. Morrill Pattern, per doz. 11 50		Drum, japanned..... 3 60		Victor No. 1..... \$1 65		Tyler's Safety, per doz. 1 85 to 2 40	
SHARPENERS, SKATE.		Drum, nickel plated..... 4 50		Oneda Jump No. 1..... 2 25		Carroll's, per doz. 3 00 to 3 75	
Diamond..... per doz. \$1 60		STAPLES.		Newhouse No. 1..... 3 85		Hoosier, per doz. 3 50 to 4 60	
Perfect..... 1 20		Blind.		Mouse and Rat.		Shaw Perfected..... 3 00 to 3 75	
SHEARS.		Barbed..... per lb. 21@22c		Net per gross		WEIGHTS.	
Per Doz.		Butter Tub..... " 16@19c		Out O'Sight Mouse..... \$ 8 00		Hitching..... per lb. Nets	
Nickel Plated, Straight, 6".... \$11 50		Fence—		" Rat..... 15 00		Sash—f.o.b. Chicago	
" " " 7".... 12 95		Polished..... per 100 lbs. \$5 45		" Mole..... 100 00		Ton lots, per ton..... \$60 00	
" " " 8".... 14 40		Galvanized..... " 6 15		#44 Pocket Gopher..... 20 00		Smaller lots, per ton..... 63 00	
Japanned, Straight 6".... 10 25		Netting.		Victor Mouse..... 2 60		WHEEL BARROWS.	
" " " 7".... 11 50		Galvanized..... per 100 lbs. 6 50		Hold Fast Mouse..... 2 60		No. 4 Tubular Steel..... @ \$7 00	
" " " 8".... 12 80		Wrought.		Victor Rat..... 11 00		Common Tray or Stave Tray @ 2 25	
Tinners'—See Snips.		Wrought Staples, Hasps and		Hold Fast Rat..... 11 00		Angle leg, garden..... @ 4 00	
SHEAVES, SLIDING DOOR.		Staples, Hasps, Hooks and		Official Rat..... 13 50		WHEELS.	
Common.		Staples, and Hooks and		Wood Choker Mouse, 4 Holes 11 00		Carborundum..... 50%	
Inches... 3 4 5		Staples..... 50&10%		TROWELS.		Emery..... 60%	
Per set..... \$1 40 1 75 2 40		Extra heavy..... 35%		Clover Leaf..... 30%		Well, Ins..... 8 10 12	
Hatfield's.		STEELYARD.		Brade's..... 15&5%		Per doz..... \$5 50 7 25 8 50	
Per set..... \$1 80 2 10 2 75 25		Discount 25%.		Disston's..... 30%		12 in. heavy hoisting, per doz. \$25 00	
SHELLS—See Ammunition.		STONES.		Rose's..... Net		WIRE.	
SHELLERS, CORN.		Axe.		Plasterers'.		Drass.	
Union..... per doz. \$6 75		Hindustan..... per lb. New Nets		Clover Leaf..... 40%		In coils..... Nets	
SHIELDS.		More Grit..... " "		Disston's..... 25%		In 1-lb. spools, new list..... Nets	
Expansion Bolt Shields..... 60%		Washita..... " "		W. & McP..... Net		Broom—Tinned..... Nets	
SHOES.		Emery.		TRUCKS.		Cable—Same price as Barbed Wire.	
Conductor..... 60%		No. 126..... per doz. New Nets		Bag..... each, \$3 75		Copper.	
SHOT—See Ammunition.		Oil—Mounted.		Warehouse or store.		In coils..... Nets	
SHOVELS AND SPADES.		Arkansas Hard No. 7 per doz. New Nets		No. 1, each..... \$24 50		1-lb. spools, new list..... Nets	
Coal.		Arkansas Soft..... " "		" 2, "..... 22 50		Fence—Smooth. An'cal'd Galv'd	
No. 2, Woodford..... per doz. \$5 50		Washita No. 717... " "		TUBS, WASH.		Nos. 6 to 9, less than	
No. 182..... 6 00		Scythe.		Standard, Wood, Ex.		car, per 100 lbs..... \$4 25 \$4 95	
Ames', new list..... Discount, 12½%		Black Diamond..... per gro. New Nets		Nos..... 3 2 1 large		Hair—New List..... 40&10%	
Neverbreak, hollow bck, blk..... Nets		Crescent..... " " 1		Per doz..... \$9 50 11 25 12 75 15 50		Market.	
National..... " " "		Green Mountain..... " " "		Galvanized.		Bright, full bdles..... Nets	
Buckeye..... " " "		LaMoille..... " " "		No..... 1 2 3		Bright, broken bdles..... "	
Mohawk..... " " "		Extra Quinnebog..... " " "		Per doz..... 15 20 14 50 20 00		Coppered, full bdles..... "	
Bar Drain & Ditching		Red End..... " " "		Twine.		Coppered, broken bdles..... "	
Iwan's Perfection..... \$30 00		STOPS, BENCH.		3-ply Cotton Wrapping.....		Tinned, full bdles..... "	
Railroad, etc.		No. 10 Morrill pattern, per doz. \$10 00		4 " ".....		Tinned, broken bdles..... "	
Black Diamond..... per doz. Net		No. 11 Stearns " " 8 75		4 " ".....		Picture—In coils..... 80% @ 80&10%	
Crescent..... " "		No. 15 Smith..... " 6 50		4 " ".....		In 5-lb. spools..... per lb. 26c	
Keystone..... " "		STOPPERS, FLUE.		4 " ".....		WRENCHES.	
Star..... " "		Common..... per doz. \$1 10		4 " ".....		Coes Steel Handle, 6 inch..... 30%	
Hollow Back..... " "		Gem, flat, No. 3..... " 1 00		4 " ".....		" " " 8 "..... 30%	
Ames', new list..... Discount, 12½%		Gem, No. 1..... " 1 10		4 " ".....		" " " 10 "..... 30%	
Snow.		STOVE PIPE—See pipe.		4 " ".....		" " " 12 "..... 30%	
Galvanized, with wood han-		STOVE POLISH—See Polish.		India Hemp, 1-lb. balls, No. 18..		Coes Knife-Handle, 6 "..... 30%	
dle, No. 56..... \$1 45		STRAPS.		2-ply Jute, 1-lb. balls.....		" " " 8 "..... 30%	
No. 55..... 1 55		Shale..... per doz. 85c & 1 20		Seins.		" " " 10 "..... 30%	
Alaska Steel.		STRETCHERS.		Soft..... per lb. Market		" " " 12 "..... 30%	
D-Handle..... per doz. \$3 50		Carpet.		Med..... " Quotation		Coes All Patterns..... 30%	
Long Handle..... " 3 00		Bullard's..... per doz. \$3 90		Hard..... " "		Bemis & Call's:	
SINKS.		Excelsior..... " 5 25		Staging, 1-lb. ball, size 21.....		Adjustable S, 15%; Adjustable S	
Cast Iron.		Malleable Iron..... " 70		" " " 24.....		Pipe, 15%; Briggs' Pattern, 10%	
Painted, 16x24..... Net		Perfection..... " 6 30		" " " 27.....		Combination Bright..... 15%	
Enameled, White, 16x24.....		King..... " 4 50		Bagging, 1-lb. ball.....		Steel Handle Nut..... 20%	
Wrought Steel.		Wire.		3-ply, "B" in hanks.....		Combination Black..... 15&5%	
Painted, 16x24..... "		O. S. Elwood, No. 1... per doz. Nets		4 " "B".....		Merrick Pattern..... 10%	
SLEDGES—See Hammers.		O. S. Elwood, No. 2.. " "		3 " "A".....		Knife Handle Pattern.	
SNAPS, HARNESS.		SWIVELS.		Fodder or Lath.		No. 62, Screw Wrench. List, plus 5%	
Covered Spring..... Add 30%		Malleable Iron..... per lb. \$0 10		130 strand.....		No. 60, Steel Handle.. "	
Judd's Pattern..... Add 33¼% to list		Wrought Steel..... per gro. 4 50		No. 21, Hand..... \$5 00		WRINGERS.	
SNATHS.		TACKS.		Oval Slide.		No. 790, Guarantee..... per doz. \$61 00	
Double Ring, Bush..... per doz. \$9 75		Bill Posters' 6-oz., 25 lb. boxes,		Inches 2 2½ 3 3½ 4 1/2		No. 770, Bicycle..... " 57 00	
Patent Loop, Bush..... " 10 00		per lb..... 15c		Each \$2.40 \$2.60 \$3.00 \$3.75 \$7.75		No. 110, Domestic..... " 50 50	
Patent Loop, Grass..... " 8 75		Upolsters' 6-oz., 25-lb. boxes,		No. 1, Genuine Wentworth,		No. 110, Brighton..... " 46 50	
SNIPS, TINNERS'.		per lb..... 15c		Noiseless Saw..... per doz. 10 50		No. 740, Bicycle..... " 55 00	
Clover Leaf..... 40&10%		SPRINKLERS, LAWN.		No. 2, Genuine Wentworth,		No. 22, Domestic..... " 48 50	
National..... 40&10%		Stearns' No. 1..... per doz. \$9 75		Noiseless Saw..... per doz. 20 00		No. 22, Pioneer..... " 44 50	
Star..... 50%		SOLDER—See Metals.		No. 3, Genuine Wentworth,		No. 770B, Bicycle..... " 92 00	
SPRINGS, DOOR.		SPRINGS, DOOR.		Noiseless Saw..... per doz. 16 00		No. 781B Guarantee..... " 101 00	
Perfect.		Light Medium Heavy		No. 500, All Steel Folding Saw			
Nos..... 2 3 4 5 6 7		Per doz..... \$1 55 2 10 3 20		per doz.			
Per doz..... 55c 60c 65c 75c 90c 1 00		Torrey's..... per doz. 1 65		130 strand..... 13 50			
Reliance.		SNIPERS, LAWN.		VISES.			
Light Medium Heavy		Stearns' No. 1..... per doz. \$9 75		No. 21, Hand..... \$5 00			
Per doz..... \$1 55 2 10 3 20		SOLDER—See Metals.		Oval Slide.			
Torrey's..... per doz. 1 65		SPRINGS, DOOR.		Inches 2 2½ 3 3½ 4 1/2			
SPRINKLERS, LAWN.		Light Medium Heavy		Each \$2.40 \$2.60 \$3.00 \$3.75 \$7.75			
Stearns' No. 1..... per doz. \$9 75		Per doz..... \$1 55 2 10 3 20		No. 1, Genuine Wentworth,			
				Noiseless Saw..... per doz. 10 50			
				No. 2, Genuine Wentworth,			
				Noiseless Saw..... per doz. 20 00			
				No. 3, Genuine Wentworth,			
				Noiseless Saw..... per doz. 16 00			
				No. 500, All Steel Folding Saw			
				per doz.			

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